Commission Services' Working Document

Sixth report on the implementation of the telecommunications regulatory package

Annexes

TABLE OF CONTENTS

Annex 2

Overview of implementation

in the Member States

Commission Services' Working Document

Sixth report on the implementation of the telecommunications regulatory package

Annexes

TABLE OF CONTENTS

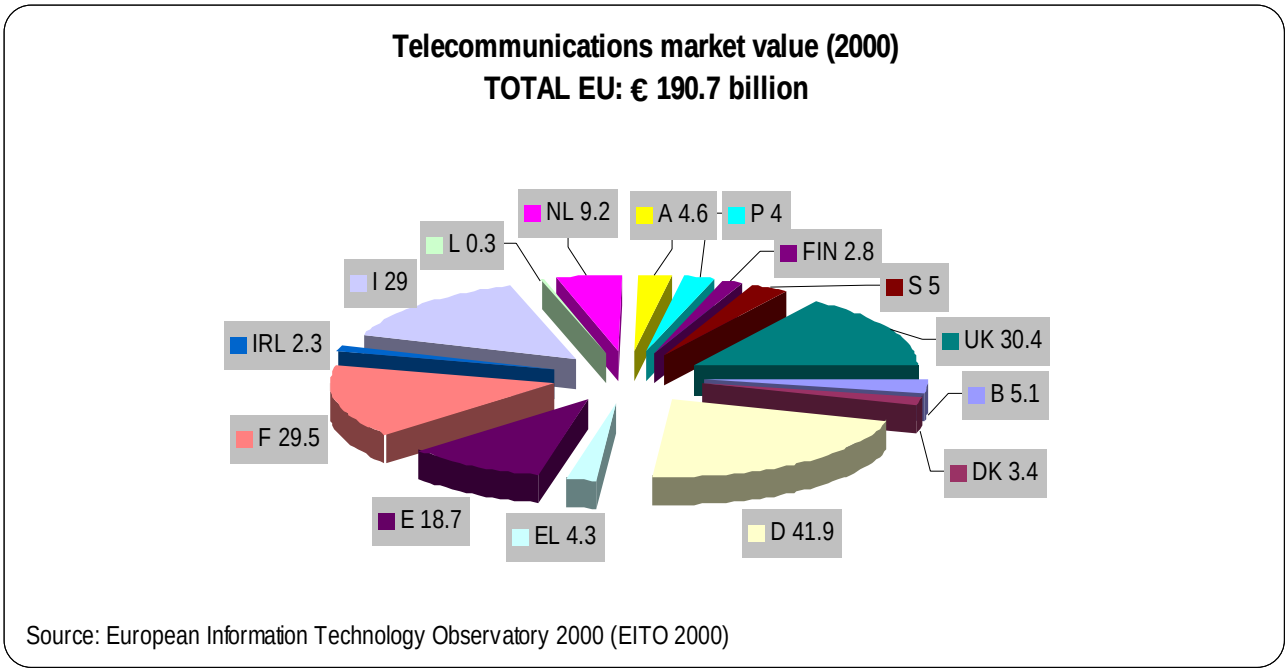
SIZE AND GROWTH OF EU TELECOMMUNICATIONS MARKET

This section provides estimates of the value of the EU telecommunications market and its breakdown into main segments (voice telephony, mobile services, switched data and leased line services).

Figures referring to 2000 are generally forecasts. Actual values calculated *ex post* might differ from those provided here.

Estimates of growth and penetration rates of mobile services and Internet usage are provided in the sections on "Mobile services" and "Internet" respectively.

Chart 1



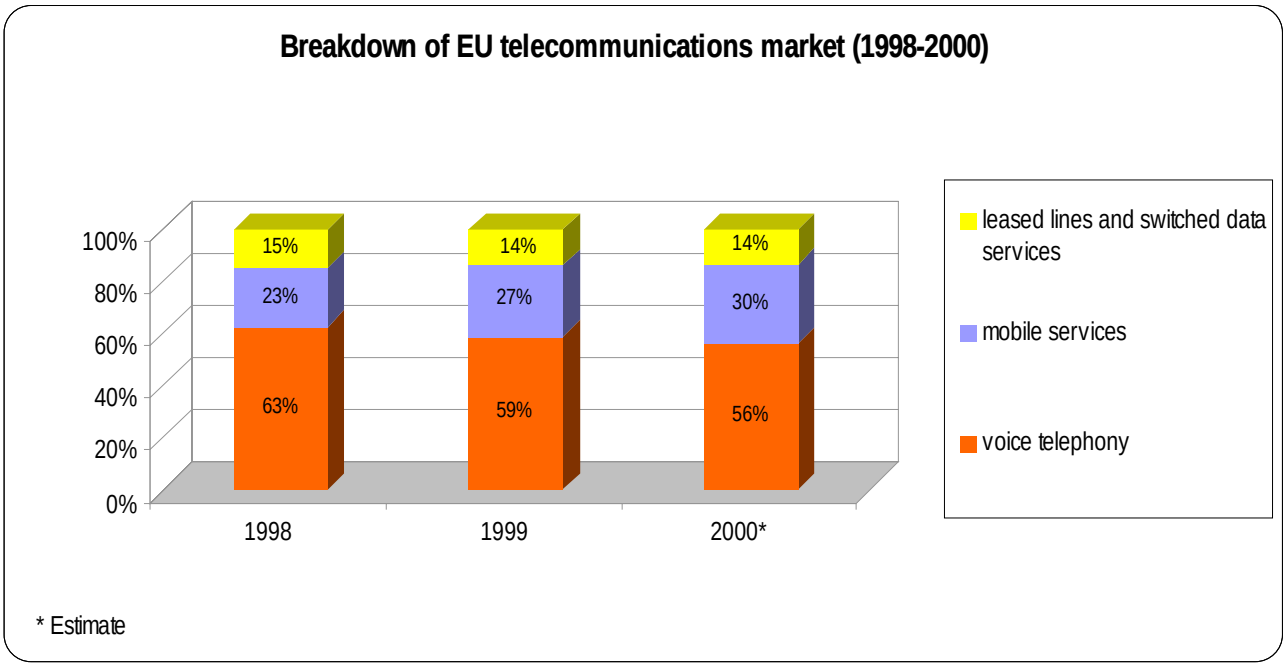
Source: European Information Technology Observatory 2000 (EITO 2000)

Estimates of 2000 revenues for public voice telephony (including home and business Internet dial-up access), network (switched data and leased lines) and mobile telephone services.

According to European Information Technology Observatory 2000 (EITO 2000) forecasts, the total value of the EU voice telephony, mobile and network services market will increase by more than 8% in 2000 compared with 1999, as a result of an average 9% growth in national markets.

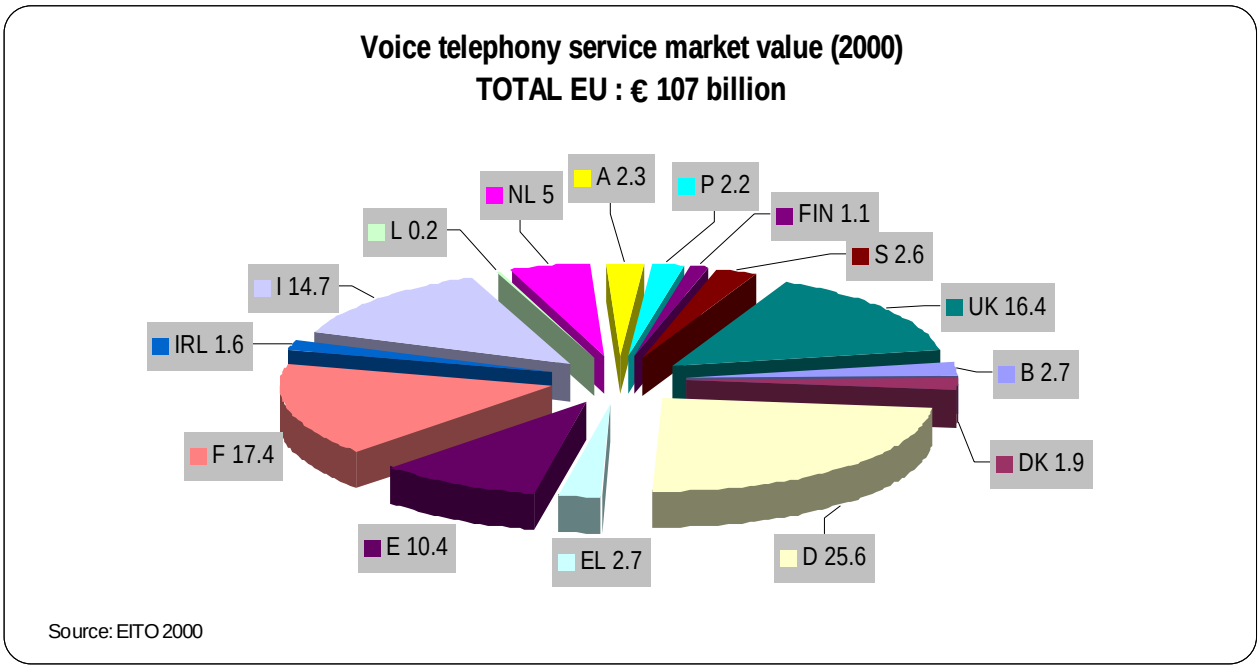
EITO provides a combined estimate for Belgium and Luxembourg. The figures given in this and the following charts are estimates based on the relative numbers of fixed lines and mobile subscribers in each of the two countries.

Chart 2



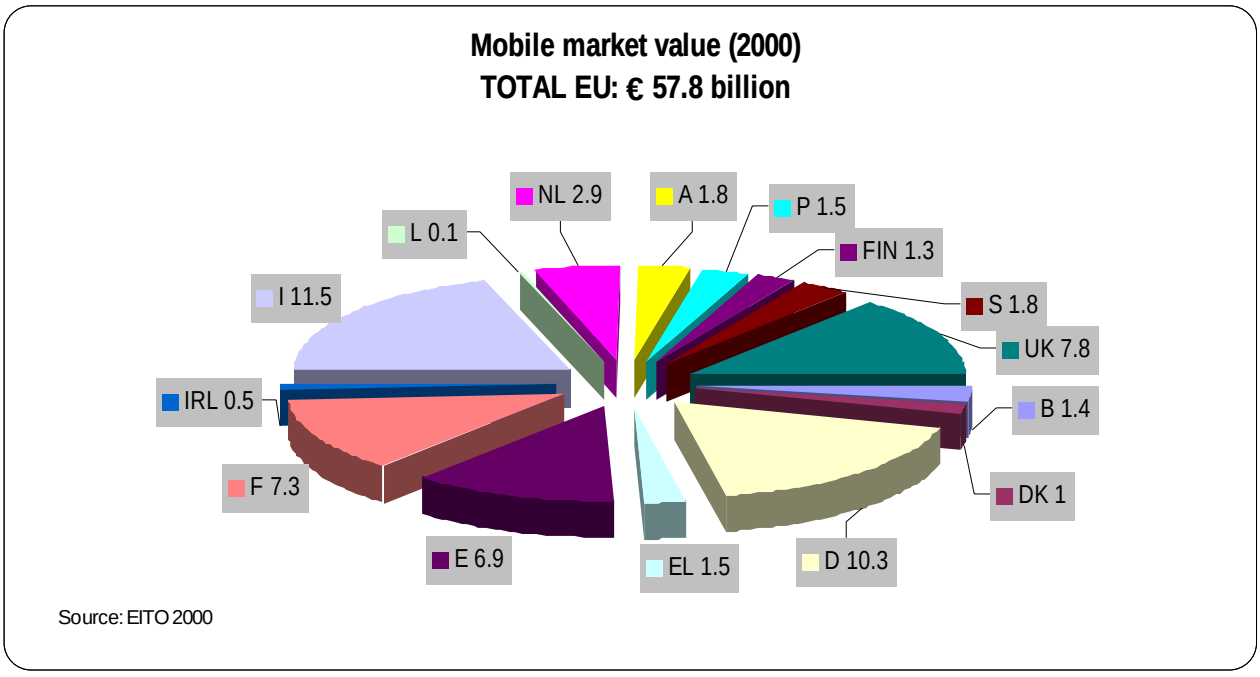
Breakdown of estimated 2000 revenues for telecommunications services into main market segments.

Chart 3



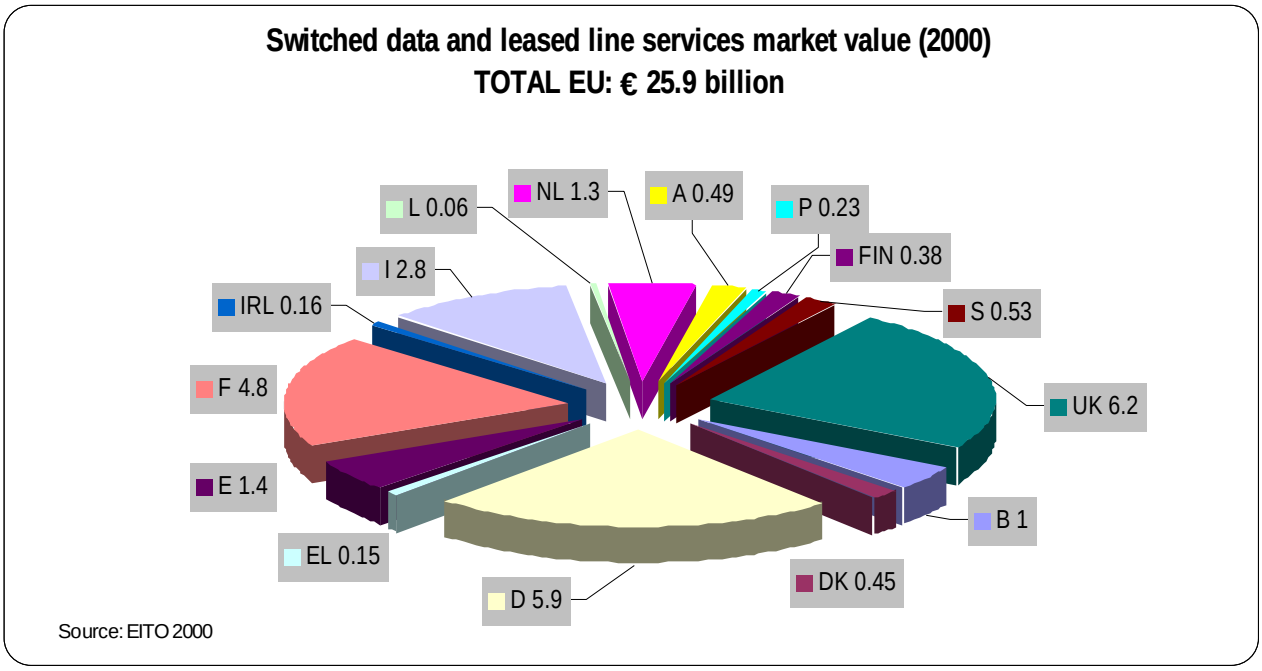
Estimates of 2000 revenues for public voice telephony.

Chart 4



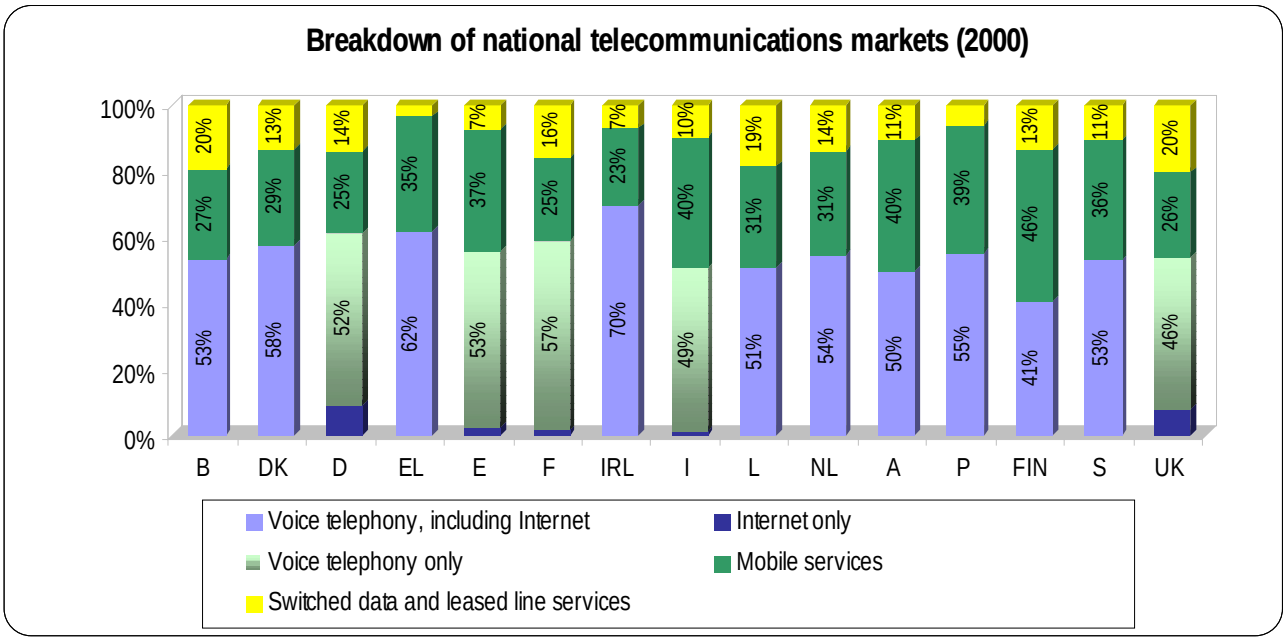
Estimates of 2000 revenues for mobile services.

Chart 5



Estimates of 2000 revenues for switched data and leased line services.

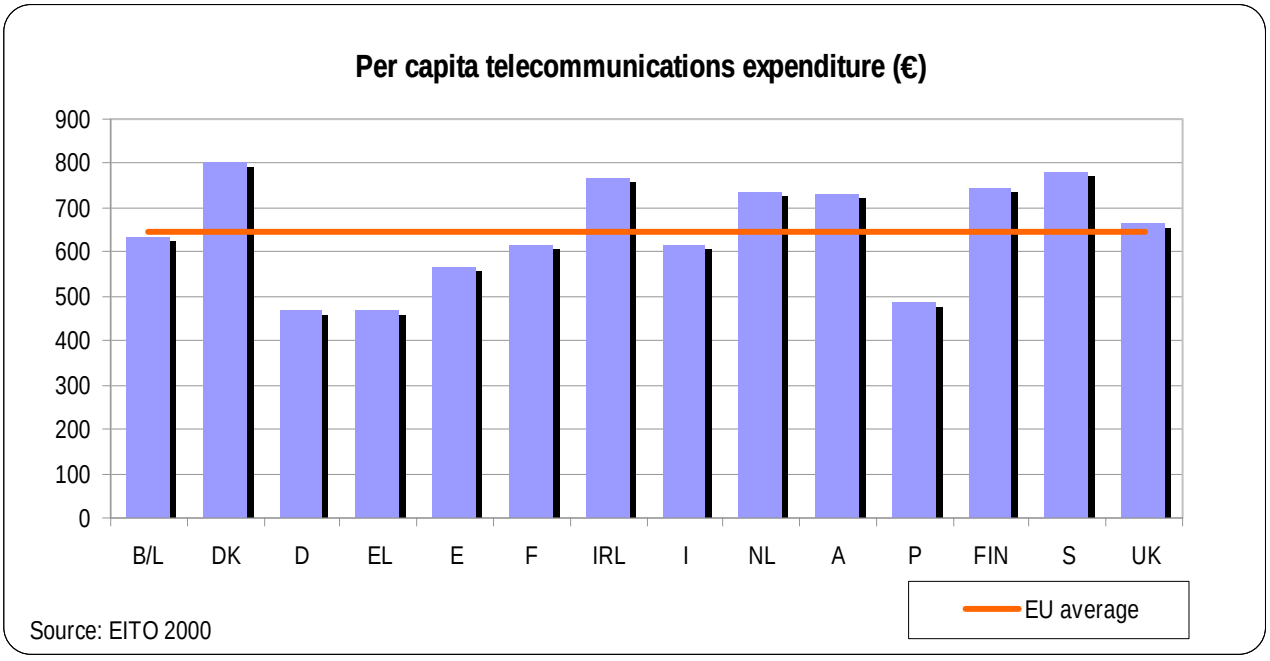
Chart 6



Breakdown of estimated 2000 revenues for telecommunications services into main market segments for each Member State.

The breakdown of revenues for PSTN traffic between voice telephony and Internet are available only for D, E, F, I and UK.

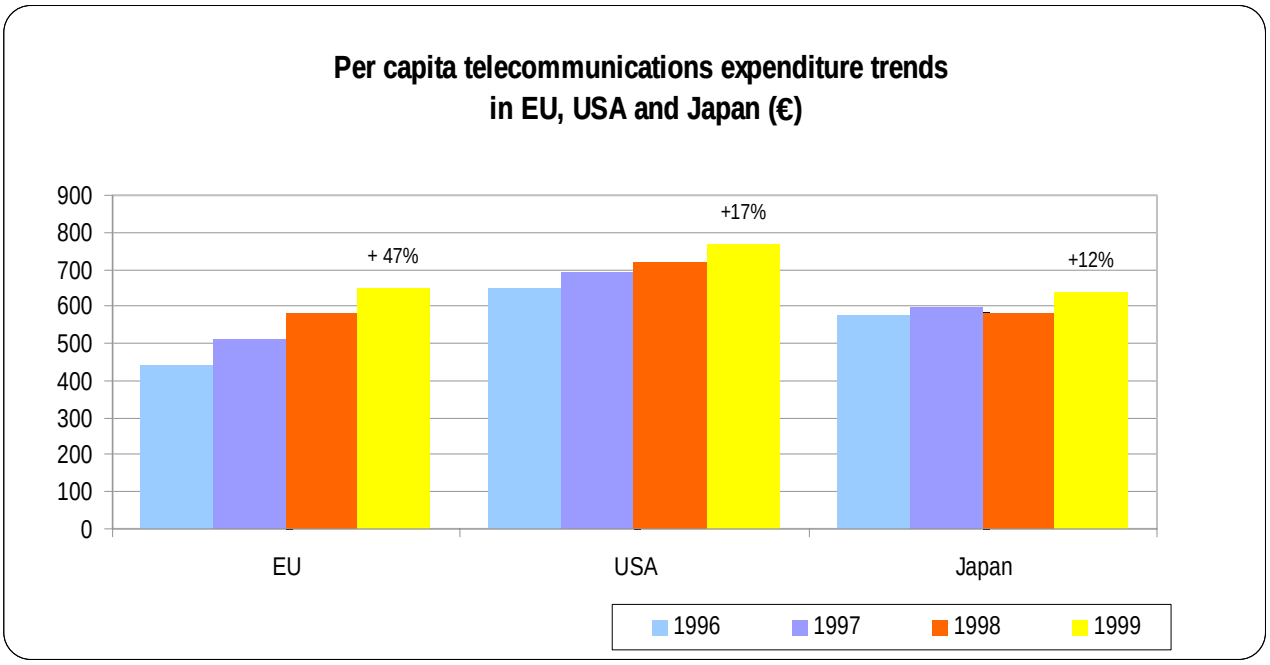
Chart 7



Per capita telecommunications expenditure in the EU in 1999.

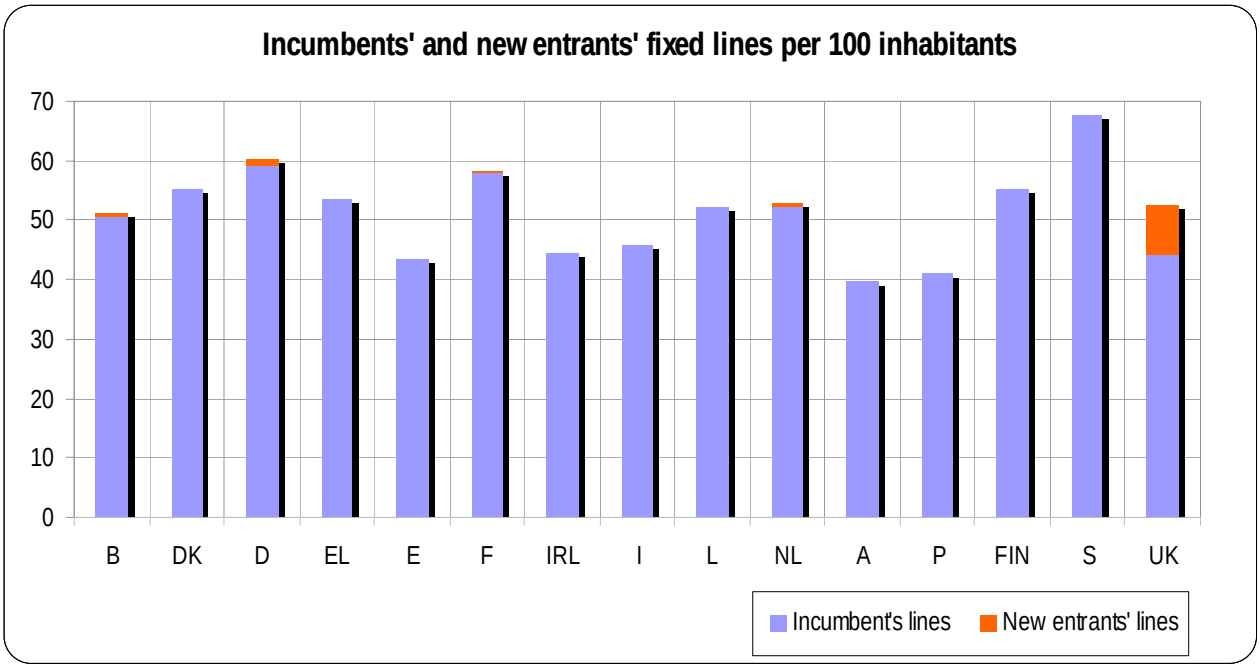
The figures refer to expenditure on telecommunications network equipment, telecommunications terminals and telecommunications services (voice, mobile, data, leased lines and cable TV), according to definitions provided by EITO 2000.

Chart 8



Growth of per capita telecommunications expenditure over the period 1996-1999 for the EU, the USA and Japan.

Chart 9



Penetration rate of incumbent's and new entrants' fixed lines in the EU countries.

The data on fixed lines refer to the situation in August for D, F, L, NL, S, in April for IRL, P, UK, and in January 2000 for the remaining countries. Data on new entrants' fixed lines are not available for DK, IRL, I, A and P.
The figures in the above chart are based on data collected from the NRAs. Due to a change in the underlying definitions, these figures are not comparable with those published in the Fifth Report.

TARIFFS

INCUMBENTS' RETAIL TARIFFS FOR PUBLIC FIXED VOICE TELEPHONY

This section examines the charging system, the line rental charges and the main tariffs for public fixed voice telephony charged by the incumbent operators in each Member State[1] in August 2000. The price trend over the past three years is also analysed.

The incumbent operators still retain a large market share, but new entrants are increasingly gaining market share by offering cheaper prices for certain types of call (usually long-distance or international) or destinations. These figures do not, therefore, represent the lowest prices available.

The figures and information are taken from a study carried out for the Commission by Teligen Foundation. The data are collected from primary sources (i.e. directly from the incumbent operators). For some types of calls, a benchmark based on a comparison with US and Japan is also included.

Two different sets of charges for fixed national voice telephony services are shown in the following sections: the charges for a basket of calls (local, long-distance, international fixed calls and calls to mobile) and the price of some individual calls (3- and 10-minute local, long-distance and international calls).

The charge for a basket of national calls gives an estimate of the average monthly spending by a typical "European business/residential user". In the case of international tariffs, the basket of international calls for each country indicates the average price of a single call from the originating country to all other OECD destinations.

The tariffs for a 3- and 10-minute call at peak time are intended to show the call charges paid by the consumer for individual calls (local, long-distance and international). Thus for incumbents which apply unit-based charging (see chart 1), the price of a whole unit is calculated. The euro exchange rate expressed in terms of purchasing power parities (€-PPP) has been applied, in order to compare the retail price level between Member States in real terms, rather than nominal terms (see appendix for more details on € and €-PPP exchange rates). Official EURO rates are used, referring to August 2000, even for past years, in order to avoid showing changes in exchange rates. Price increases/decreases over time are in nominal rather than real terms (i.e. the effects of inflation are not excluded).

Unlike in previous years, the "EU average tariffs" shown in the charts are weighted (by population of the Member States in 1999) rather than simple averages. For this reason the figures are not comparable.

[1] The incumbent operators considered are the following: Belgacom for Belgium, Tele Denmark for Denmark, Deutsche Telekom for Germany, OTE for Greece, Telefonica for Spain, France Telecom for France, Eircom for Ireland, Telecom Italia for Italy, P&T Luxembourg for Luxembourg, KPN for the Netherland, Telekom Austria for Austria, Portugal Telecom for Portugal, Sonera for Finland, Telia for Sweden, British Telecom for the United Kingdom.

1. CHARGING SYSTEM

The billing system for public voice telephony services usually comprises two components: an initial charge applied at the beginning of a call and a charge for the remainder of the call (that may not depend on the type of initial charge used).

1. INITIAL CHARGES

The initial charge can take the following two forms.

- **Call set-up charge** which applies as soon as the call is answered. This charge may include a number of seconds of call time before normal time-based charging starts (in this case it is also called *initial charge*). In some cases the call set-up charge applies only if the time-based charge for the call is less than the call set-up charge, to ensure that operators receive a minimum revenue per call (in this case it is also called *minimum charge*).
- **Unit charge**, which has the same effect as the initial charge. A full unit is charged at the beginning of the call, and includes a number of seconds of call time until the next unit is charged. Depending on the principle used by the operator (synchronous/asynchronous), the number of seconds of call time in the first unit may be less than the specified unit duration.

2. CHARGING SYSTEM DURING THE CALL

Operators currently use two main ways of charging calls: real time charging or unit-based charging. Both are used in conjunction with an initial charge (call set-up or minimum charge). Most operators publish duration charges on a per-minute basis, irrespective of which system is used.

The two systems are:

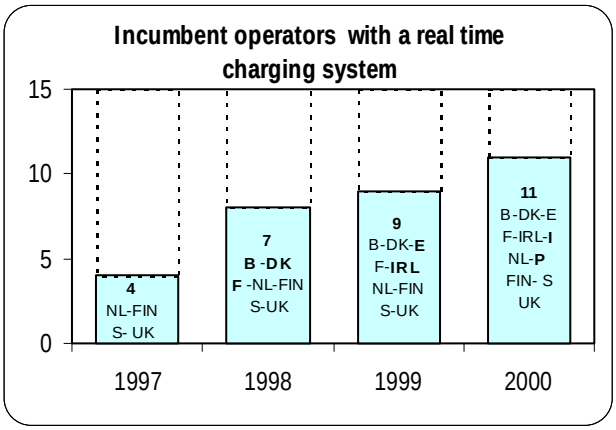
- **Real time charging** (also known as per-second billing): the duration charge is directly proportionate to the exact duration of the call (normally to the nearest second). A call set-up charge may also apply.
- **Unit-based charging** uses a fixed price unit[2]. The duration of this unit varies according to the destination of the call and time of day. Call duration is always rounded up to a multiple of whole units, so the user will nearly always pay for more time than is used. A call set-up charge may apply, but is relatively rare.

The real time charging method can be perceived as being more convenient for users, as it is the most transparent method (users only pay for what is actually used). However, there is no guarantee that this method will result in the lowest call charge: most of incumbent operators have switched from a unit-based system to real time charging, keeping the same average duration charge, but adding a (new) call set-up charge, resulting in a higher overall cost per call. This especially affects medium-length calls, depending on the price structure before and after the change. This effect was seen for the incumbent's tariffs in Netherlands a few years ago, and now in Italy.

[2] A variation of this method, used in the US, is **fixed period charging,** which uses a variable price, but fixed duration unit. The call is normally charged on a per-minute or per 6-seconds basis. The price for the period will vary according to destination and time of day. The charged duration of the call is rounded up to a multiple of whole periods. A call set-up or initial charge is often applied in the form of a higher charge for the first period. This initial charge may vary according to destination and time of day.

During the last three years more and more incumbent operators have been moving from a unit-based to a real time charging system, and in August 2000 only the incumbents in Greece, Luxembourg, Austria and Germany (for local calls only[3]) still use a unit-based charging system[4].

Chart 1



Call set-up charges may vary according to the type of call (local, long-distance, international, calls to mobile), and for international calls according to destination.

The following charts show the call set-up charges for long-distance calls and calls to mobile charged by the incumbent operators. The free call time (i.e. the number of seconds of call time before normal time-based charging starts) is shown in brackets. Values are expressed in €-PPP, including VAT.

The incumbent operators in Belgium, Denmark, Germany, Spain, Italy, Austria and Finland[5] apply a lower call set-up charge for local calls (or a longer "free call time") than for long-distance calls.

The incumbent operators in Belgium, Spain, Italy and Portugal apply higher call set-up charges for international calls than for long-distance calls: around 30% more in Spain and Portugal, almost four times as much in Italy. The incumbent operator in Belgium applies two different call set-up charges for international calls depending on the destination (28% or 70% more than for long-distance call set-up). The incumbent operators in Ireland and Greece do not apply any call set-up charge for international calls.

Six incumbents apply higher set-up charges for calls to mobile network than for calls to fixed network. In some cases the difference is substantial: the charge is double in Denmark, Germany and Portugal, and more than three times as much in France (+220%) and Spain (+269%).

[3] National calls and calls to mobile are charged per minute rather than the normal unit.

[4] The 1999 Teligen's report did wrongly state that Denmark used a unit based system in 1998, and that Austria used per second charging. This was due to a misinterpretation of the tariff information provided by the carriers, where the charging system was not clearly defined.

[5] Sonera.

Chart 2

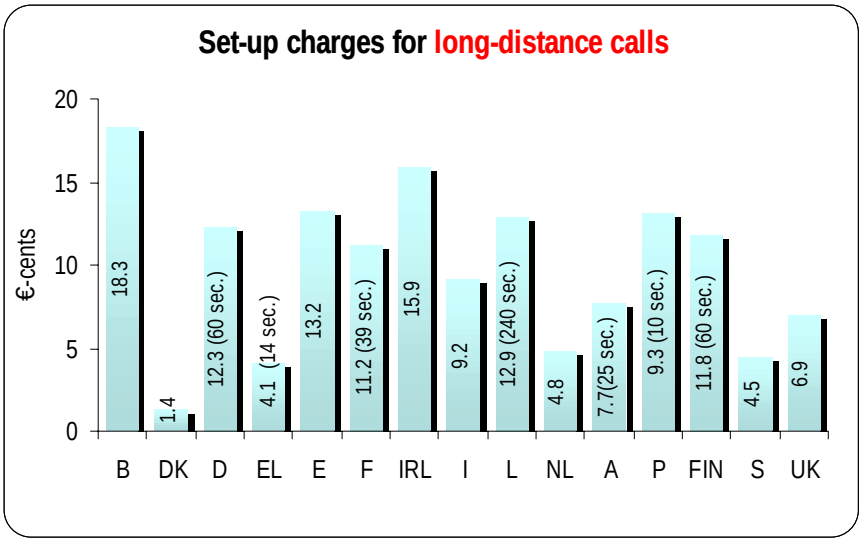
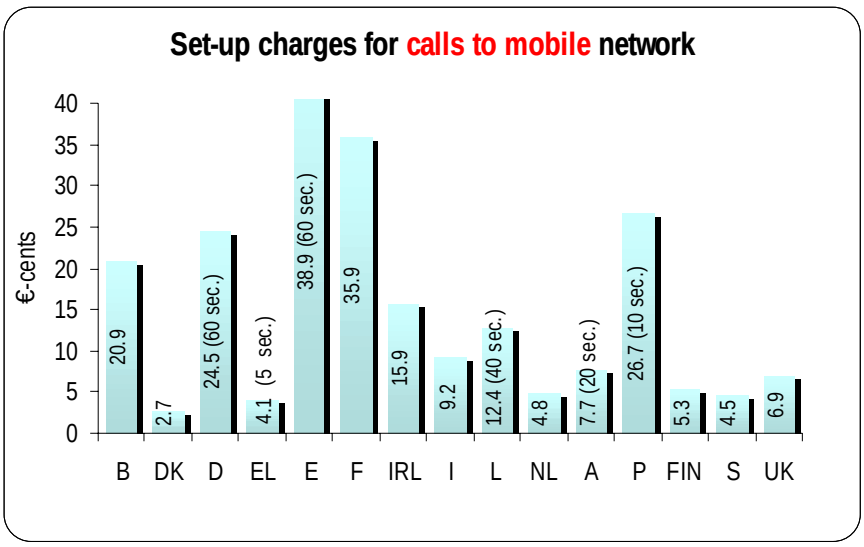


Chart 3



2. MONTHLY RENTAL CHARGED BY THE INCUMBENT OPERATORS

The following charts show the incumbent's monthly line rental charges for residential and business users in August 2000 and the variation in nominal terms in each country since August 1997. In order to reflect the real charges actually paid by users, values are expressed in €-PPP, including VAT for residential users and excluding VAT for business users.

The percentage variations 1997-2000 are calculated as a weighted average of the variations in individual Member States, rather than the variation in EU weighted average values.

The incumbent operators in France, Italy, the Netherlands, Austria, Sweden and the United Kingdom apply different monthly line rental charges for residential and business users. In the other countries the differences between the types of users is due only to the exclusion of VAT for business users.

On average the EU monthly line rental charge for business users (including VAT) is 36% higher than that for residential users: the differences vary from (around) 18% (in France, Netherlands and Austria), to 38% in Sweden, 47% in Italy and 62% in the United Kingdom.

Chart 4

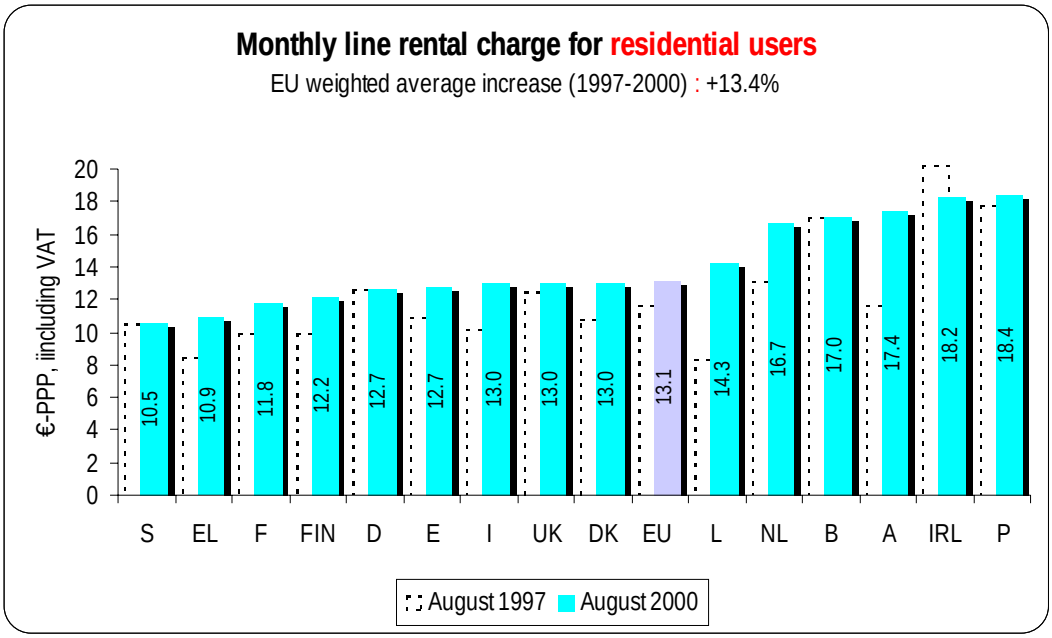
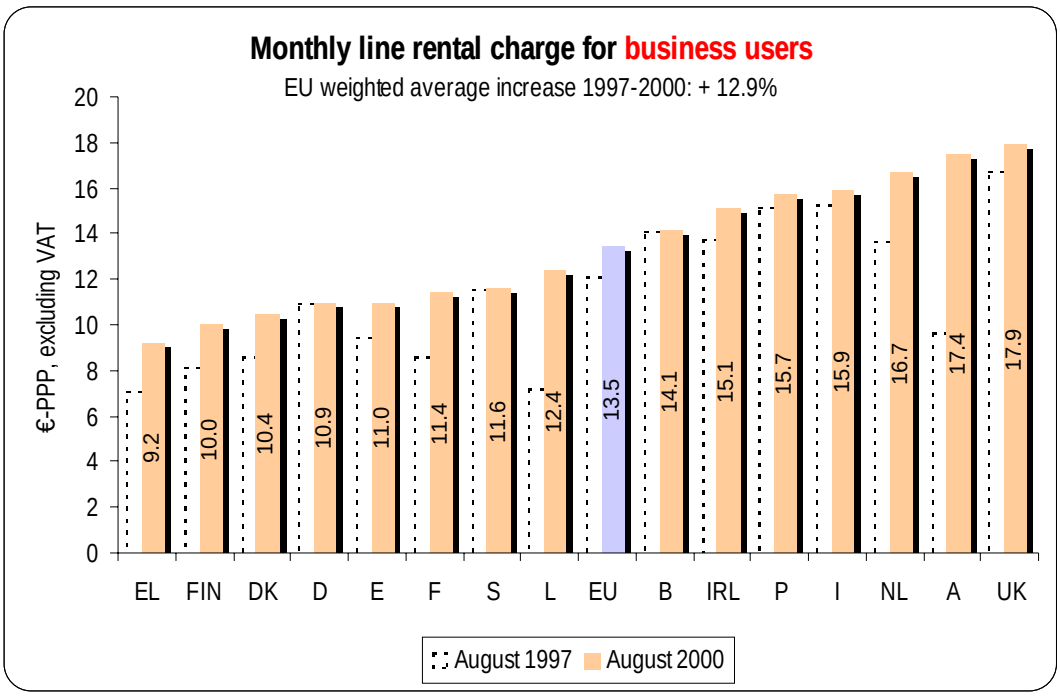


Chart 5



The following charts show the EU weighted average variation in nominal terms of the residential and business monthly line rental charge.

Chart 6

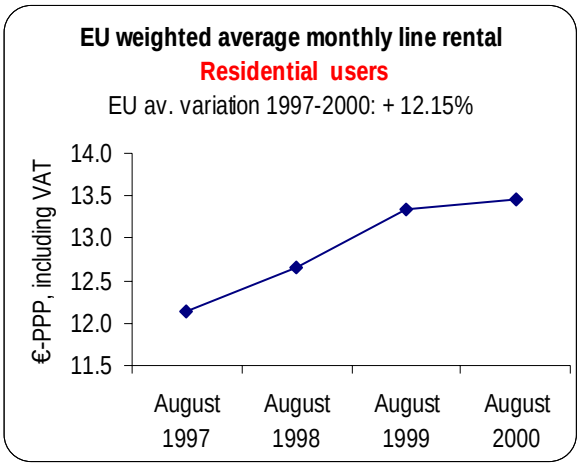
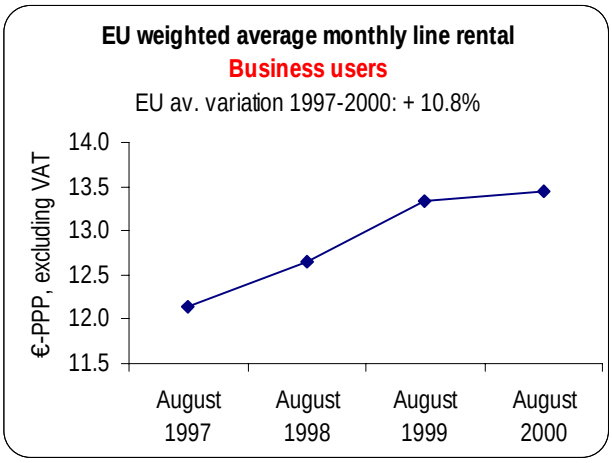


Chart 7



3. AVERAGE MONTHLY EXPENDITURE (call basket)

The figures presented in this section are intended to provide an estimate of the average monthly expenditure of a "standard" European consumer (business and residential). The Basket Methodology for Telecommunications Cost Comparison has been devised by the OECD and accepted in most countries as the most stable and neutral method of comparison[6].

The user is assumed to have a contract for the provision of voice telephony services with the incumbent operator, and to use only this operator for all types of call (local, long-distance, international, calls to mobile). Since consumers are making increasing use of call-by-call carrier selection, in particular for specific highly discounted types of calls (i.e. international and long-distance), the figures given below are purely indicative, and do not necessarily reflect the cheapest solution available.

The charts below show the average monthly expenditure for standard residential and business users as of August 2000, expressed in €-PPP, based on the standard tariffs charged by the incumbent operators (i.e. excluding any discount packages). This means that lower costs can be achieved if the user subscribes to one or more discounted packages.

The basket of calls used to estimate average monthly expenditure is the new "composite OECD basket"[7], which includes not only fixed national calls (as did the old basket), but also fixed international calls and calls to mobile networks.

The OECD residential/business baskets are defined as follows (on an annual basis):

The fixed (i.e. non-recurring) charges include the annual line rental charge plus the charge for the installation of a new line (depreciated over 5 years). Fixed charges for residential users include VAT, while for business users VAT is excluded.

[6] A full description of the methodology can be found in "Performance indicators for public telecommunications operators", ICCP Series No.2.2, OECD 1990.

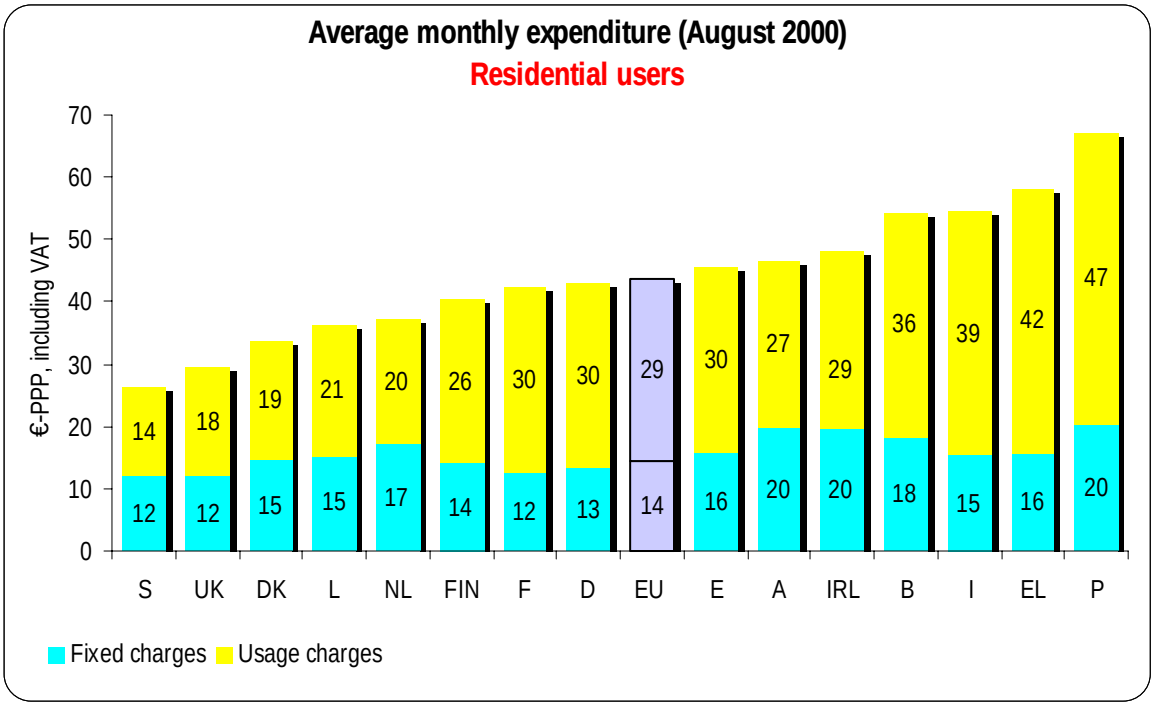
[7] The revised OECD baskets were adopted in May 2000.

The usage charge for residential users refers to a basket of 1 200 national calls to fixed lines, plus 120 calls (with an average duration of 2 minutes) to mobile networks[8], plus 72 international calls[9]. The usage charges for national calls to fixed lines are calculated with a weighted distribution over 14 distances from 3 to 490 km, at representative times of day (4 during the week and 2 at the weekend). The call duration varies from 2.5 to 7 minutes, depending on time and distance. The usage for residential users is weighted towards off-peak hours, and with typically long calls. Only 36% of the calls are within normal business hours; 64% are for distances below 10 km; 9% are for distances above 100 km.

The usage charge for business users refers to a basket of 3 600 national calls to fixed lines plus 360 calls (with an average call duration of 2 minutes) to mobile networks[8], plus 216 international calls[9]. The usage charges for national calls to fixed lines are calculated with a weighted distribution over 14 distances from 3 to 490 km, at representative times of day (4 during the week and 2 at the weekend), and with a call duration of 3.5 minutes regardless of time of day and distance. The usage for business users is weighted towards business hours, and with typically short calls. Over 85% of the calls are within normal business hours; 64% are for distances below 10km; 12.5% are for distances above 100 km.

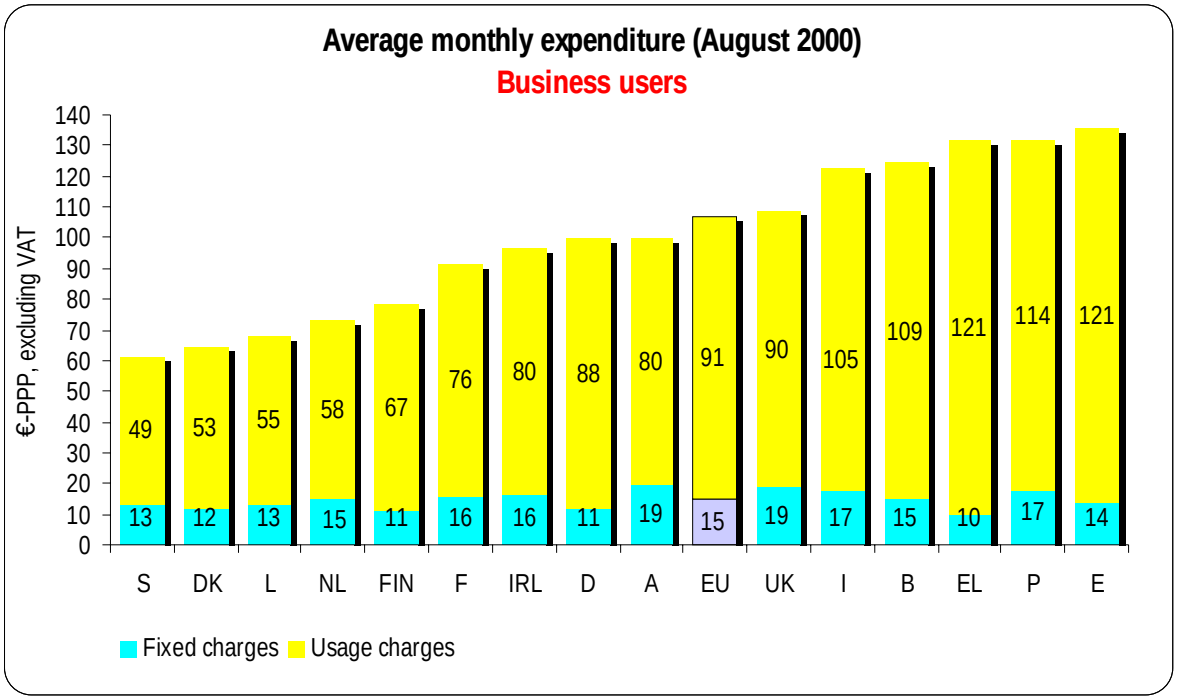
In the case of Luxembourg, local calls cover the entire country.

Chart 8



[8] Representing 10% of the number of calls to fixed lines.
[9] Representing 6% of the number of calls to fixed lines.

Chart 9



4. FIXED NATIONAL CALLS

4.1. PRICES CHARGED BY THE INCUMBENT OPERATORS FOR INDIVIDUAL FIXED NATIONAL CALLS

This section shows the prices charged by the incumbent operators for individual fixed calls (the same call prices apply to business and residential users). Where the incumbent operator uses a unit-based charging system (see Chart 1), the price of calls of different durations and/or distances may in some cases be identical, where both calls are charged the same number of units.

Prices refer to peak hours (weekdays 11.00) and are expressed in €-PPP including VAT. Except where otherwise specified, the figures refer to August 2000.

Prices are indicated for three-minute and 10-minute calls over two distances: 3 km (equivalent to a local call) and 200 km (equivalent to a long-distance call). In several countries the tariff changes at exactly one of these distances: in these cases, the rates for the lower distance band are used.

The price of a three-minute call is more affected by the magnitude of the call set-up charge than the price of a 10-minute call.

Where two or more tariff packages are available (i.e. Austria and the Netherlands), the prices refer to the basic residential package. In all other cases the prices refer to the standard tariff (cheaper tariffs may be available under discounted packages).

The EU average value is the average of the EU countries weighted according to population in 1999. The percentage variations 1997-2000 are calculated as a weighted average of the variations in the individual Member States, rather than as the variation in EU weighted average values.

Chart 10

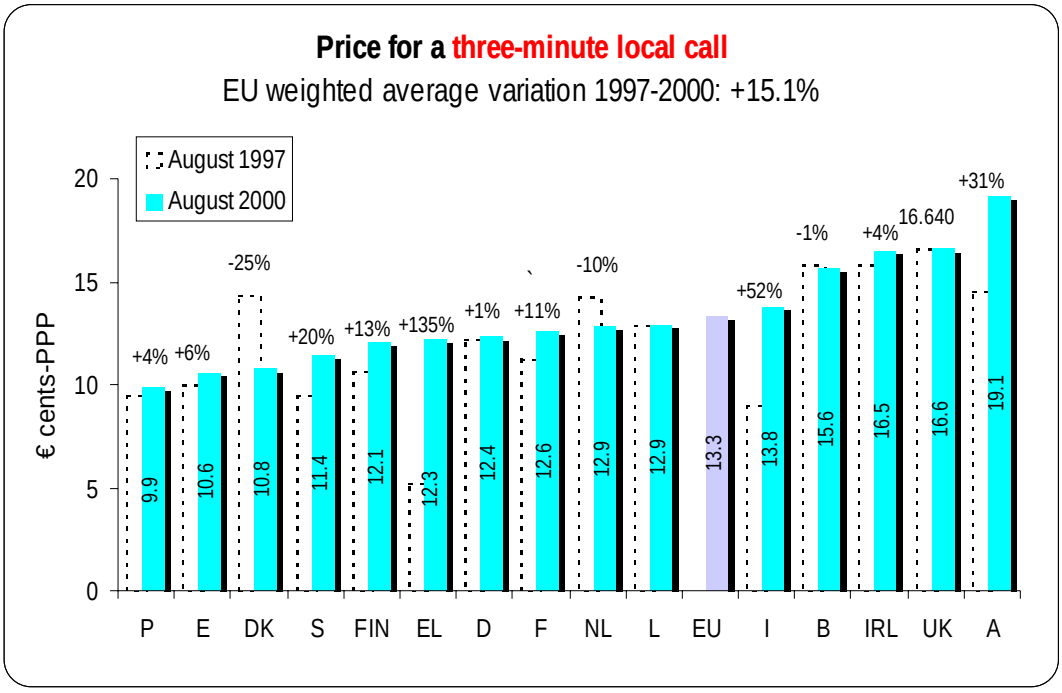


Chart 11

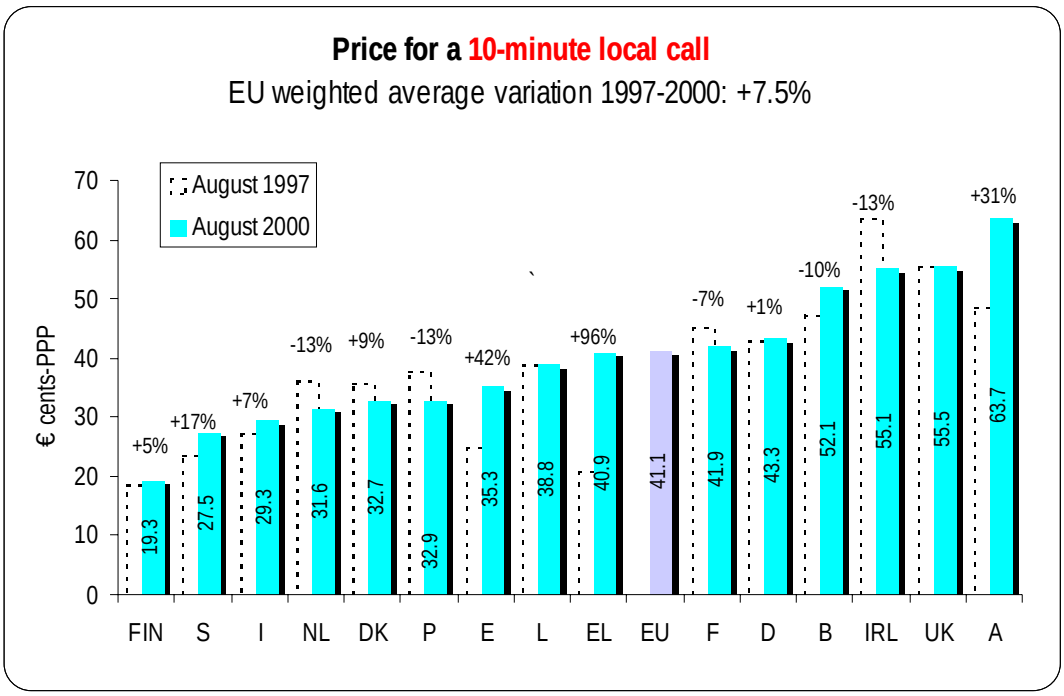


Chart 12

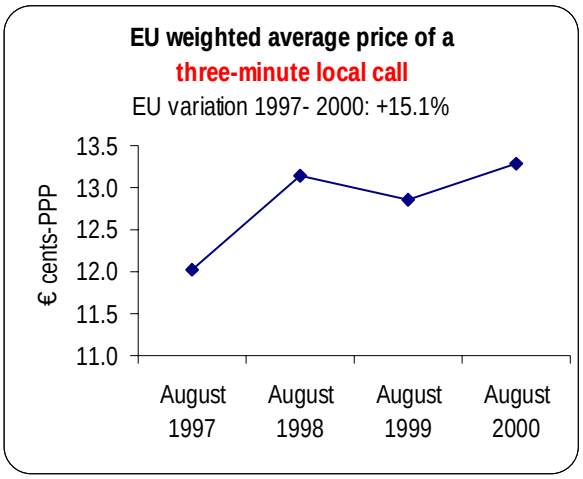


Chart 13

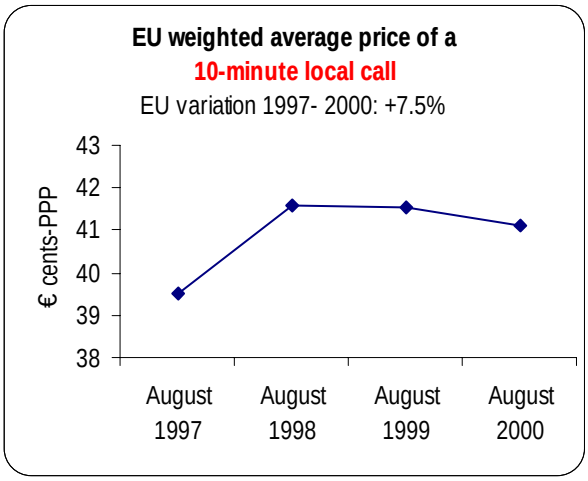


Chart 14

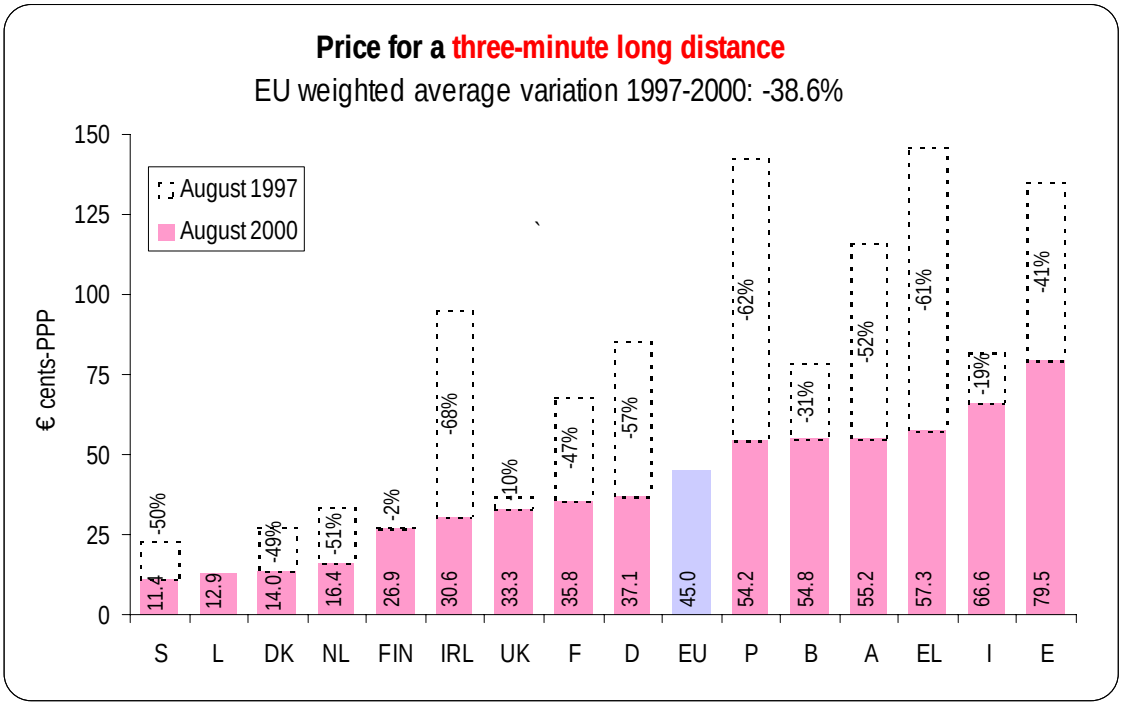


Chart 15

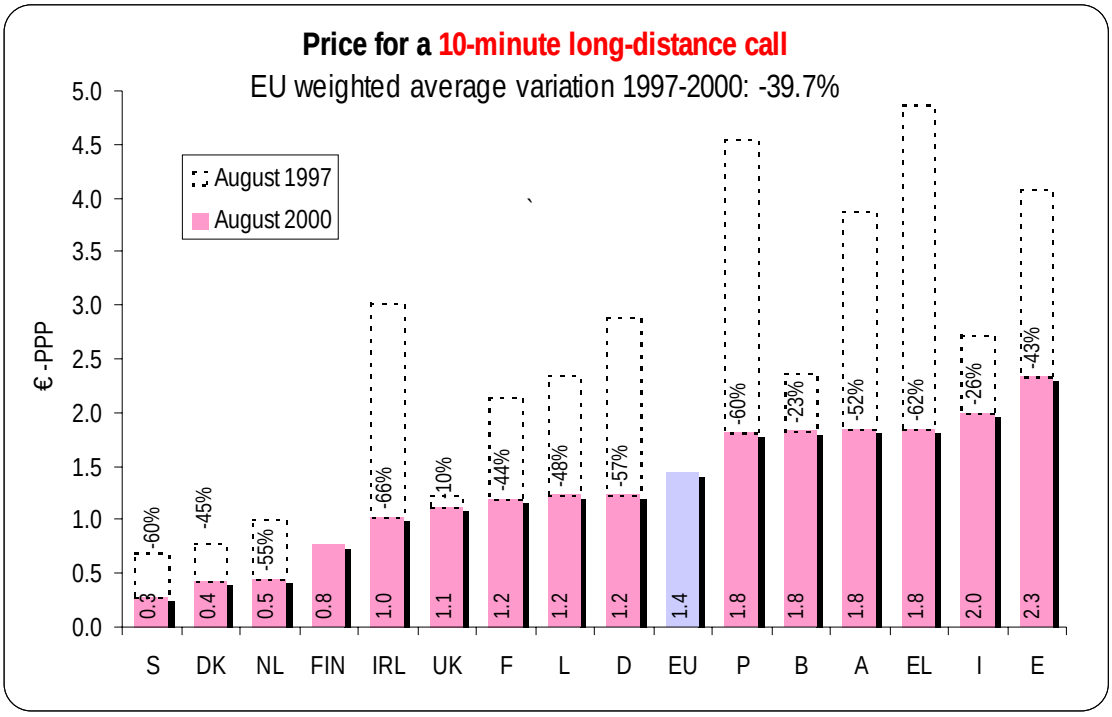


Chart 16

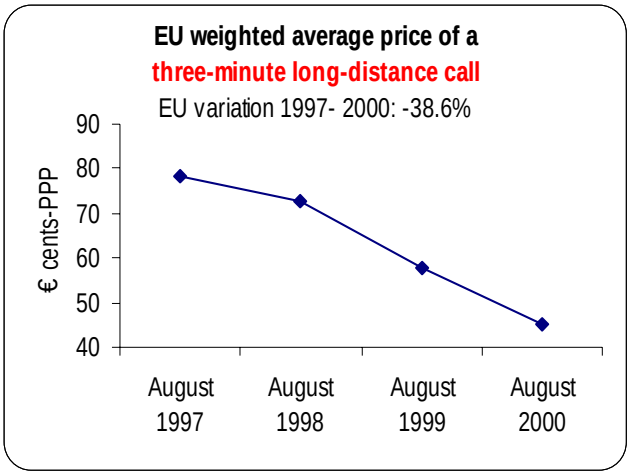
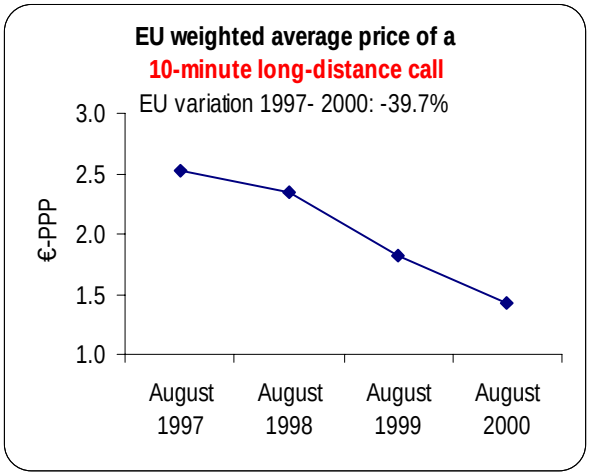


Chart 17



4.2. TREND OF THE BASKET FOR FIXED NATIONAL CALLS

The following charts show the variation in the monthly expenditure of residential and business users on fixed national calls in nominal terms from August 1999 to August 2000 (in order to maintain consistency over time, the "old" OECD basket, which includes only fixed national calls, is used).

The variation in the international basket is shown in section 5.

Chart 18

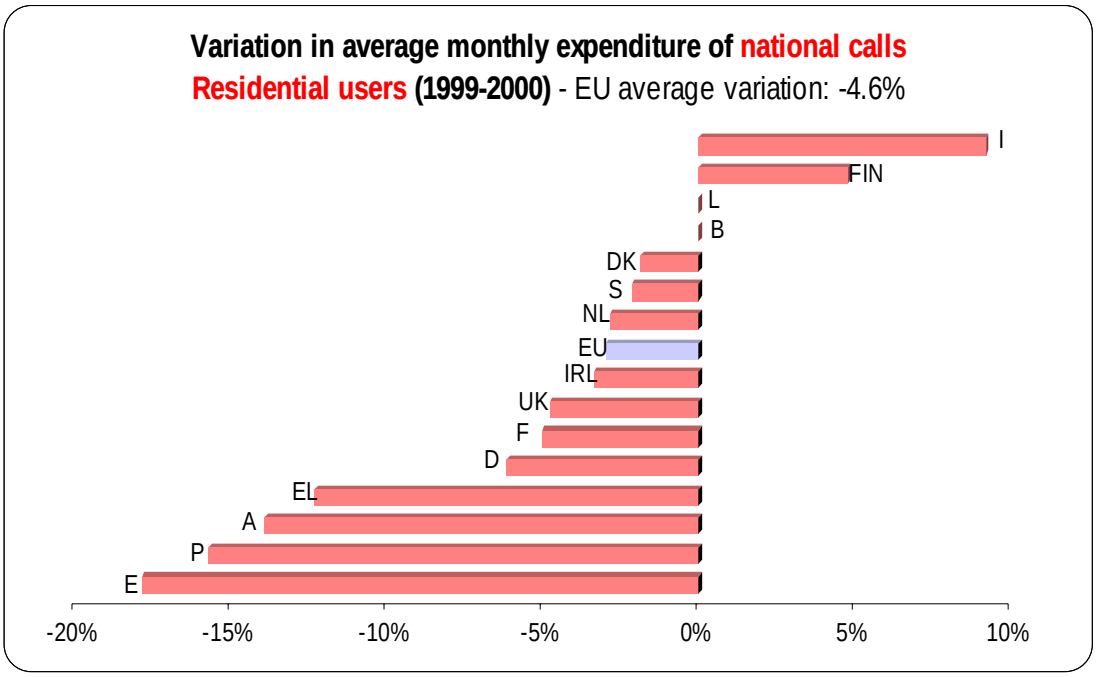


Chart 19

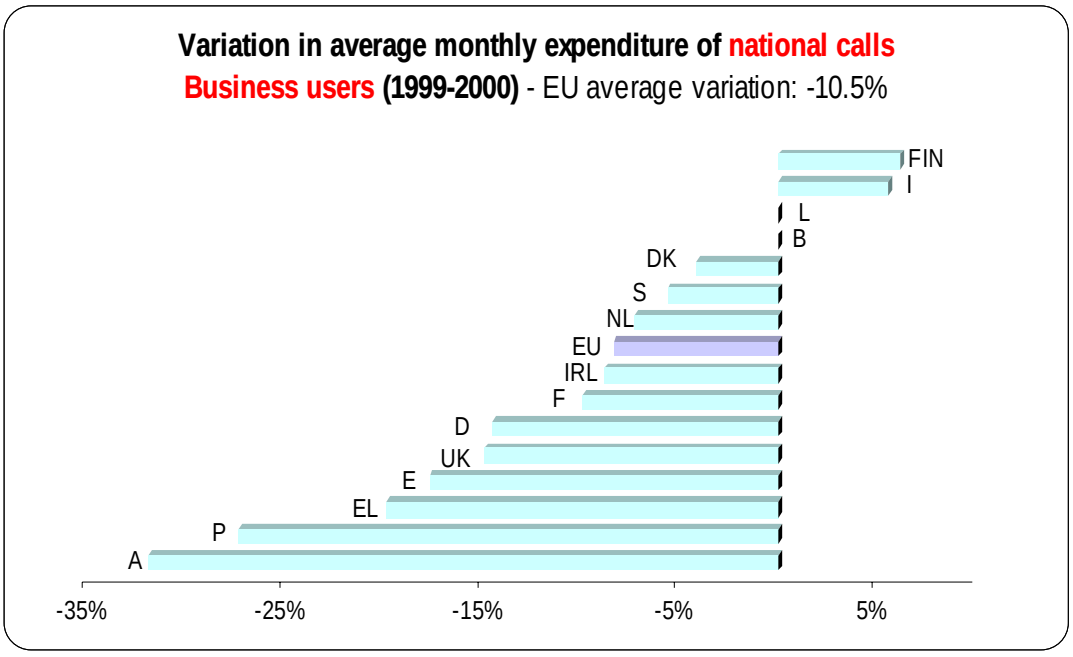


Chart 20

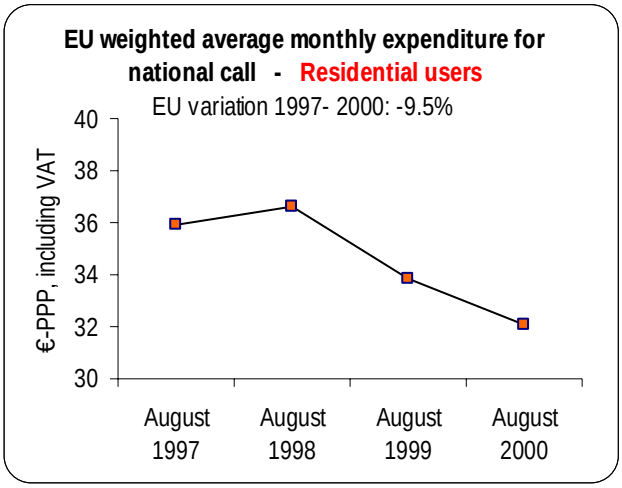
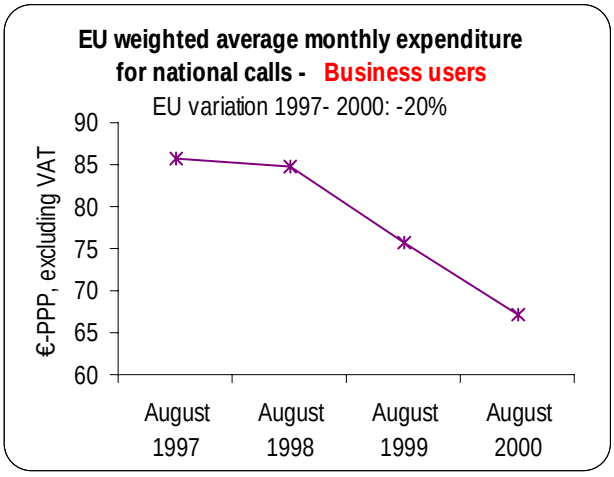


Chart 21



5. FIXED INTERNATIONAL CALLS

The following charts show the prices of the international call basket (an estimate of the average cost in each country of an international call) and the price of a 10-minute call to specified destinations (within Europe, to Japan and to the USA).

5.1. PRICE OF AN AVERAGE FIXED INTERNATIONAL CALL (INTERNATIONAL CALL BASKET)

The basket of international calls for each country indicates the weighted average price of a three-minute call during peak hours and a five-minute call during off-peak hours from the originating country to each other OECD country. The basket uses the zoned weighting method, which divides the OECD members into three zones: Europe, North America and Asia/Pacific. Each destination is weighted according to its position relative to the country of origin: calls to a country in the same zone have a 50% weighting, calls to a country in the adjacent zone have a 30% weighting, and calls to a country in the distant zone have a 20% weighting. The prices refer to the standard tariff packages, and not to any cheaper tariffs which may be available under discounted packages.

The residential basket includes VAT. Call charges are weighted between peak and off-peak hours: 25% for peak hours and 75% for off-peak hours. The business basket excludes VAT. Call charges are weighted 75% for peak hours and 25% for off-peak hours. The average price of an international call is lower for business users than for residential users because of the heavier weighting given to three-minute peak-hour calls, which are on average cheaper than five-minute off-peak calls, and because VAT is excluded for business users but included for residential users.

Values are expressed in €-PPP and give the position in August 2000.

The variations in nominal terms since August 1997 are also shown. The EU percentage variations over time are calculated as a weighted average of the variations in individual Member States, rather than as the variation in the EU weighted average value.

Chart 22

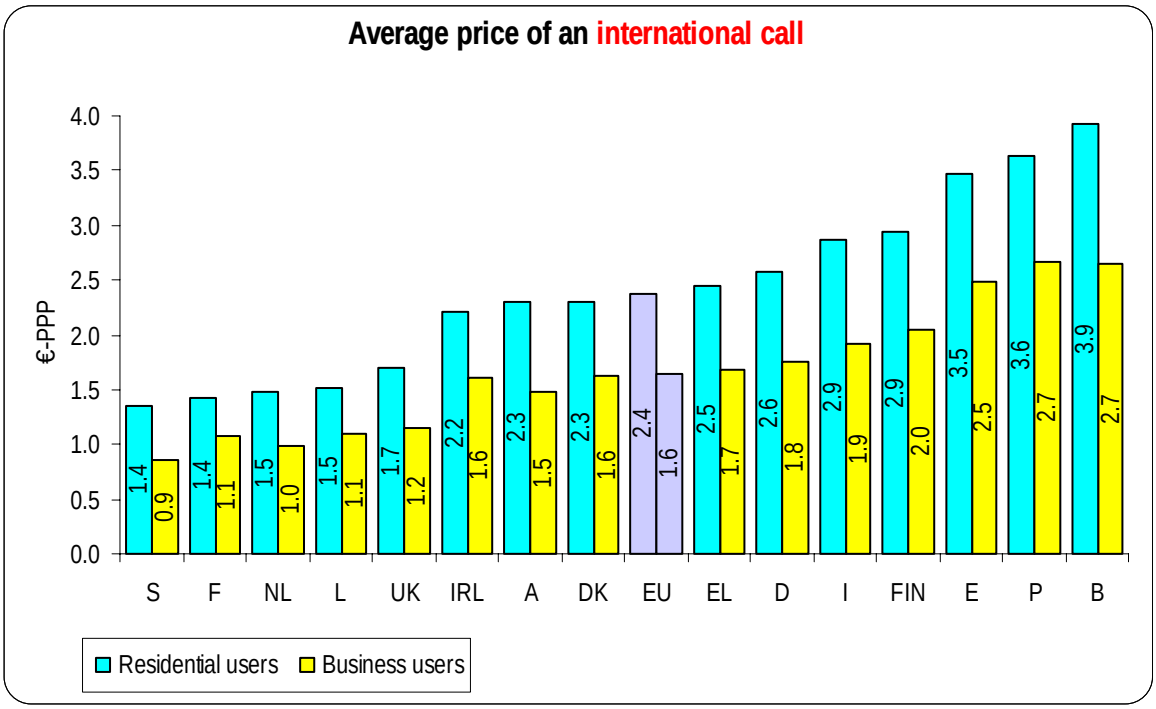


Chart 23

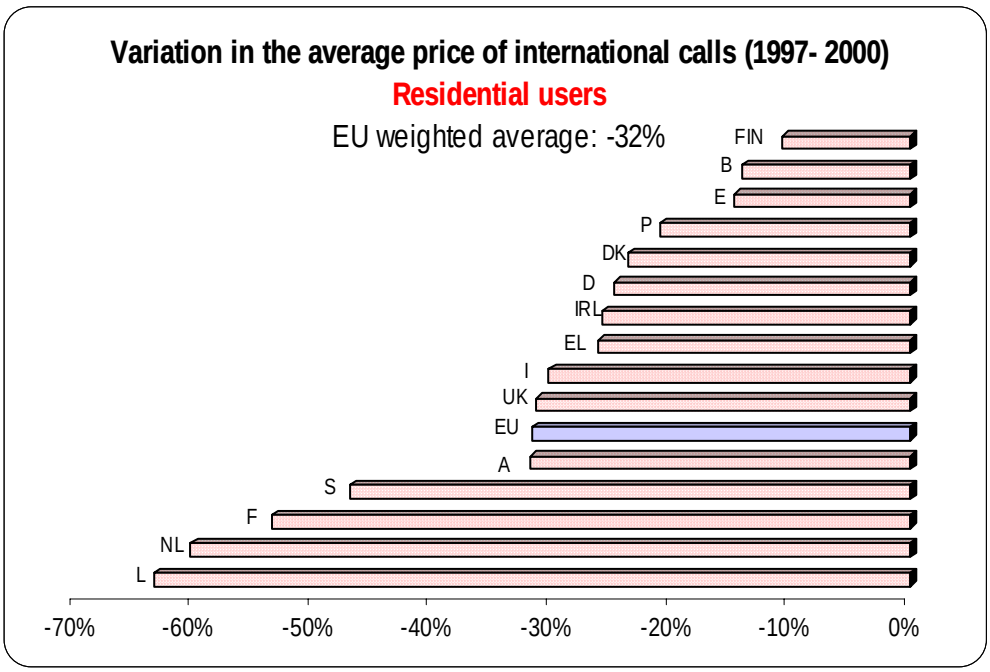


Chart 24

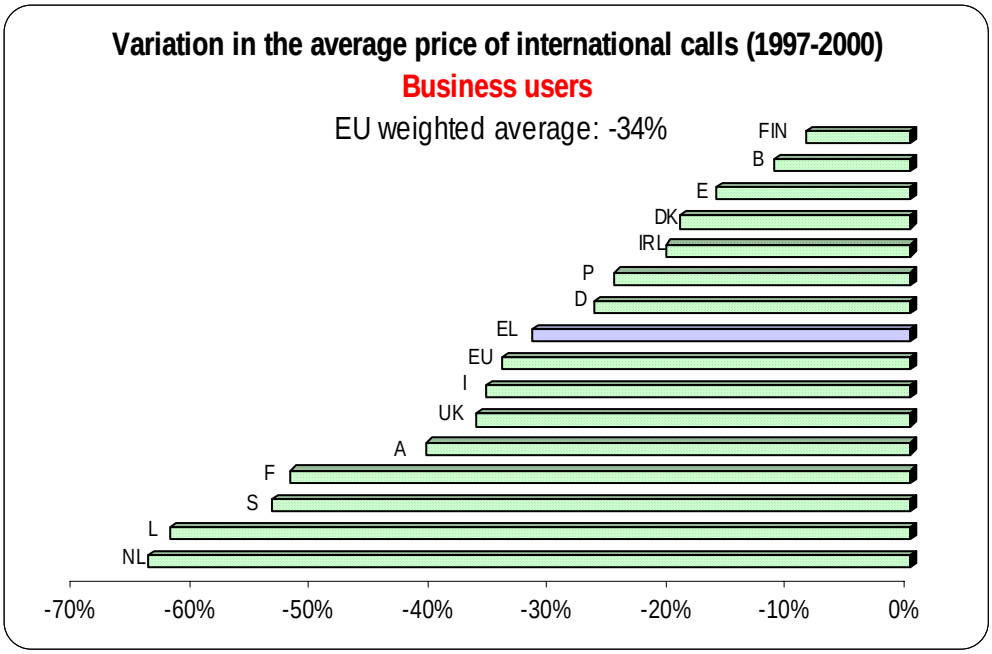
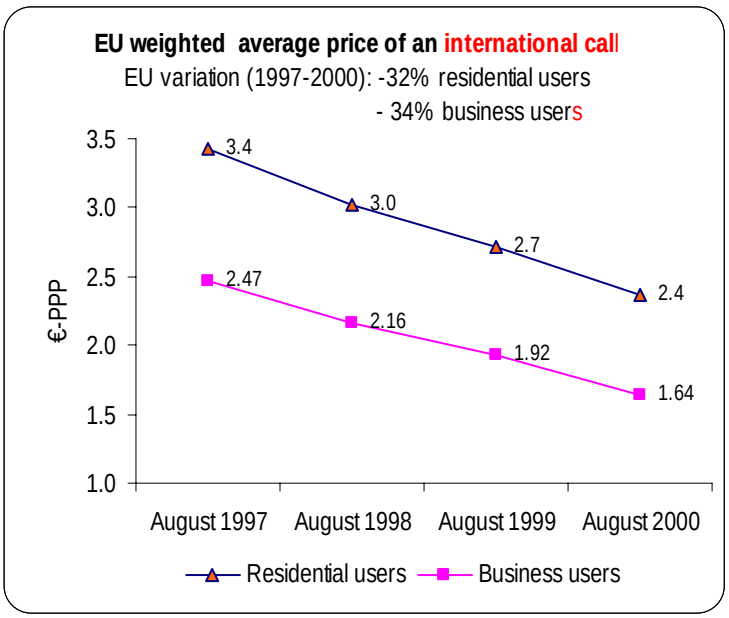


Chart 25



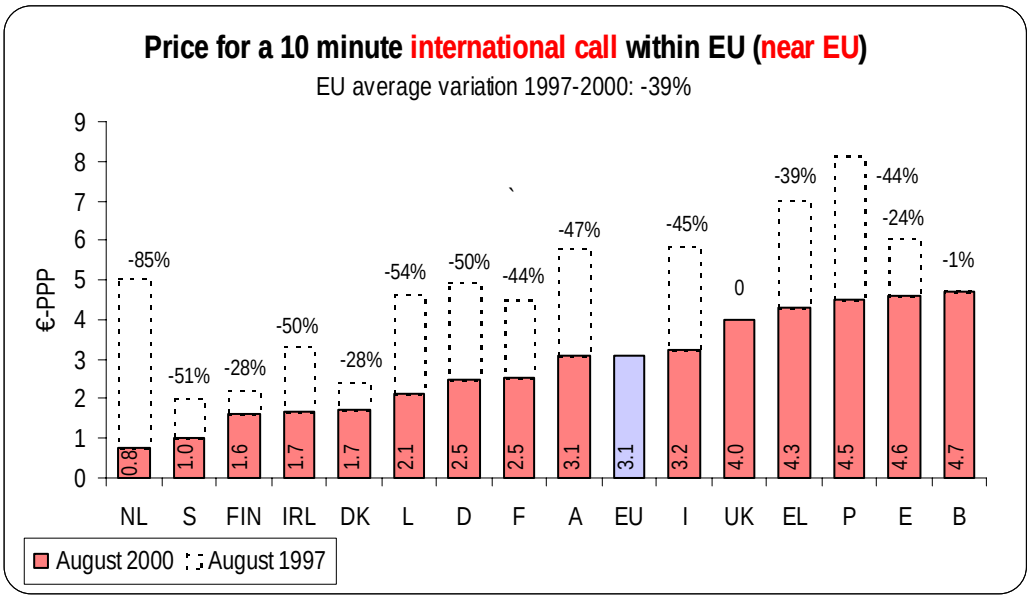
5.2. PRICES OF INDIVIDUAL INTERNATIONAL CALLS TO EUROPE, JAPAN AND THE USA

The following two charts show the prices of a 10-minute international call (including VAT) during peak hours (weekday 11.00) to four different destinations: neighbouring country[10] (near EU), more distance country[11] (far EU), Japan and the USA.

Figures are expressed in €-PPP at August 2000 values, including VAT; they refer to the European incumbent operators, the EU weighted average, DKK for Japan and AT&T for USA.

Where possible, price variations since August 1997 are also included.

Chart 26



[10] The neighbouring countries are defined as: France for Belgium, Germany and the United Kingdom; Sweden for Denmark and Finland; Italy for Greece (and *viceversa*); Portugal for Spain (and *viceversa*); the United Kingdom for Ireland, USA and Japan; Germany for Luxembourg, The Netherlands and Austria; Belgium for France.

[11] The more distant countries are defined as: Greece for Belgium, Denmark, Germany, France, Ireland, Luxembourg, The Netherlands, Austria, Finland, Sweden, the United Kingdom, USA and Japan; Denmark for Greece, Spain, Italy and Portugal.

Chart 27

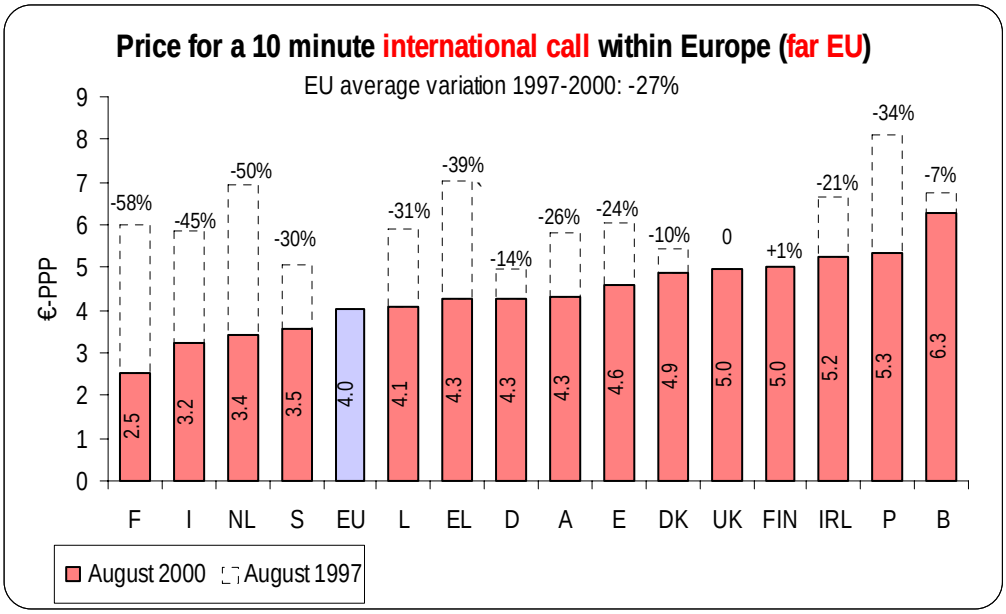


Chart 28

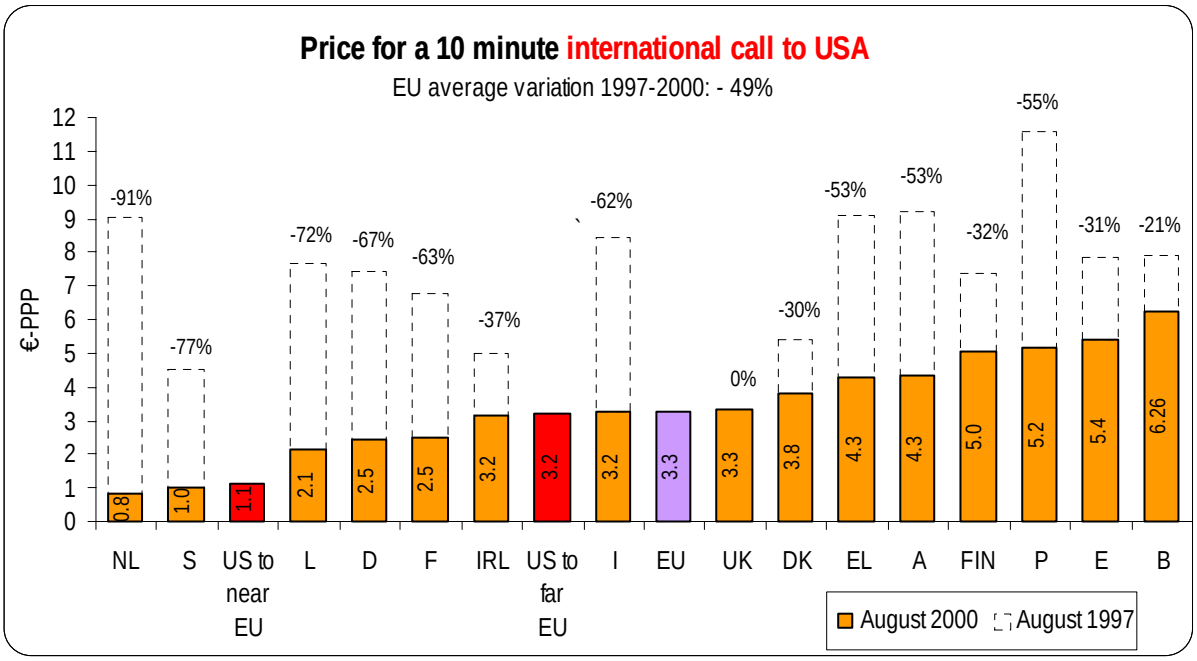
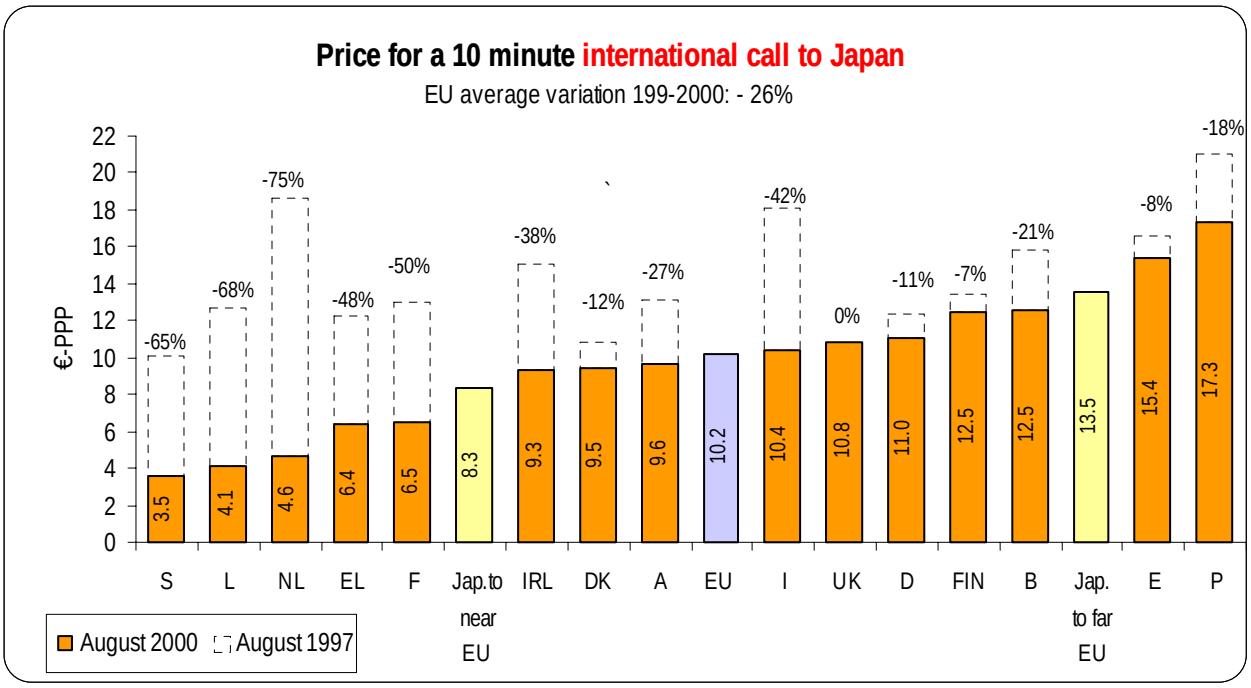


Chart 29



6. COMPARISON BETWEEN THE EU, JAPAN AND THE USA

This section compares the prices charged by the incumbent operators in Japan and the EU and by leading operators in the USA for public voice telephony services.

For the EU, the prices charged by the cheapest and the most expensive incumbent operators are shown as well as the EU weighted average[12].

For Japan and the USA, the prices quoted for national and international calls relate to different operators, as there is a split market where different operators have traditionally been allowed into the two market segments.

For the USA, the prices for national calls are those charged by Ninex/Bell Atlantic/Verizon (in New York city)[13] and Pacific Bell (in the State of California), and the prices for international calls are those charged by AT&T. Since prices vary substantially across the country, these tariffs are merely examples and are not necessarily typical (for example, many operators offer "free" local calls, depending on the tariff package chosen by the subscribers).

For Japan, the national call prices are those charged by NTT and the international call prices are those charged by KDD

Prices include VAT and are those applying on August 2000.

[12] Average of the prices charged by the incumbent operators in each Member State weighted by population of the Member States in 1999.

[13] The operator has changed name twice during the past four years. Prices for the same operator may vary depending on the specific user location in the area covered by the local operator. We have taken the prices for New York city.

Unlike in previous reports, the euro exchange rate is expressed in terms of purchasing power parities (€-PPP), using the official EURO rates applying on August 2000 (see appendix for more details on € and €-PPP exchange rates), and weighted rather than simple averages are used. These figures are therefore not comparable with the figures given in previous reports.

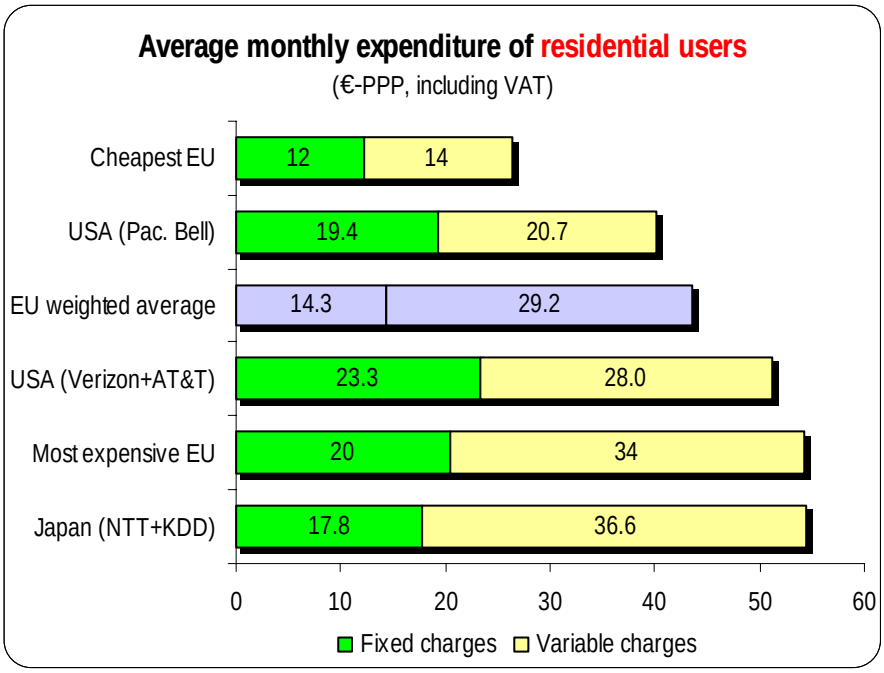
As the cost of living is much higher in Japan than in Europe, there is a substantial difference (-43%) between prices expressed in € and in €-PPP (for the USA the difference is around 8%). If the prices were expressed in €, the difference between prices in Europe and in the USA would be lower, and the prices in Japan would generally be higher than the prices in Europe.

6.1. COMPARISON OF AVERAGE MONTHLY EXPENDITURE (CALL BASKET)

The following charts compare the average monthly expenditure of residential and business users in the EU, Japan and the USA.

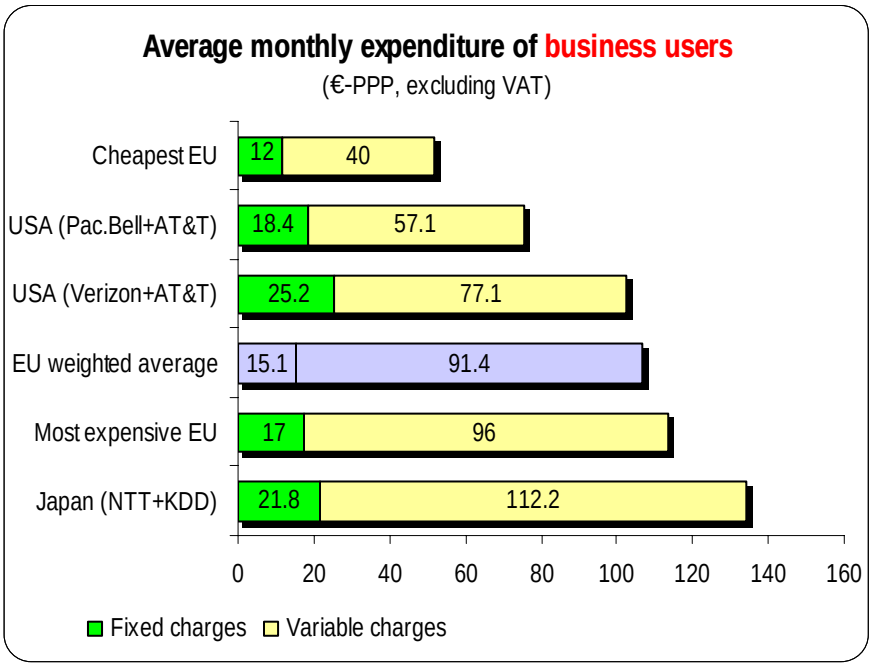
The fixed charges include the annual line rental charge plus the charge for new line installation (depreciated over 5 years). The usage charge refers to a basket[14] of calls of all types from the operators' fixed network (national, international, calls to mobile) (see section 3 for more details on the definition of call basket).

Chart 30



[14] 1 392 calls for residential users and 4 086 calls for business users.

Chart 31



6.2. COMPARISON OF PRICES OF AN INDIVIDUAL NATIONAL CALL

The following charts compare the prices charged by the incumbent operators in Japan (NTT) and the EU and by a leading operator in the USA (Verizon) for a 3-, 5- and 10-minute national call during peak hours (weekdays 11.00).

The longer the call, the greater the difference between the EU price and the US price: +10% for a 3-minute call, +87% for a 5-minute call, +249% for a 10-minute call. This does not apply to long-distance calls, where the price difference is around 160% irrespective of the call duration.

In Japan, local calls (expressed in €-PPP) are cheaper than in the EU, but long-distance calls are around 20% more expensive. The price difference for local calls falls as the call duration increases: prices are 116% higher in the EU than in Japan for a 3-minute call, 75% higher for a 5-minute call, and 63% higher for a 10-minute call.

Chart 32

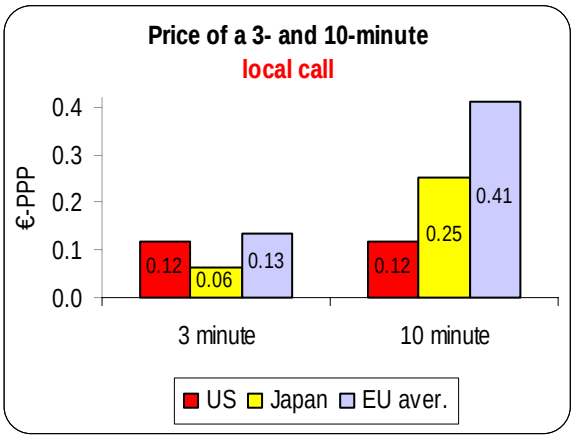


Chart 33

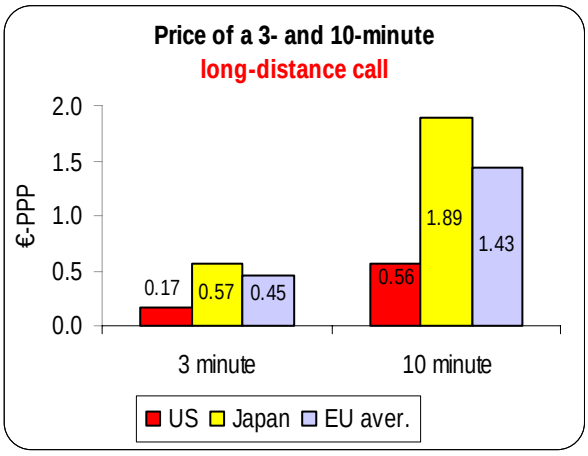


Chart 34

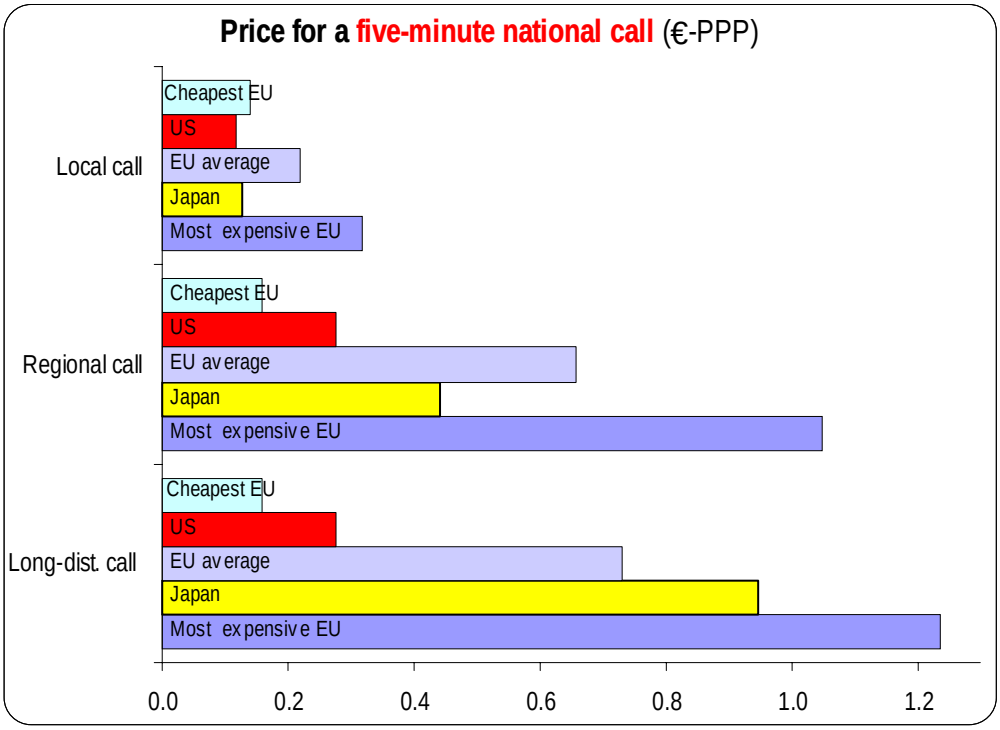
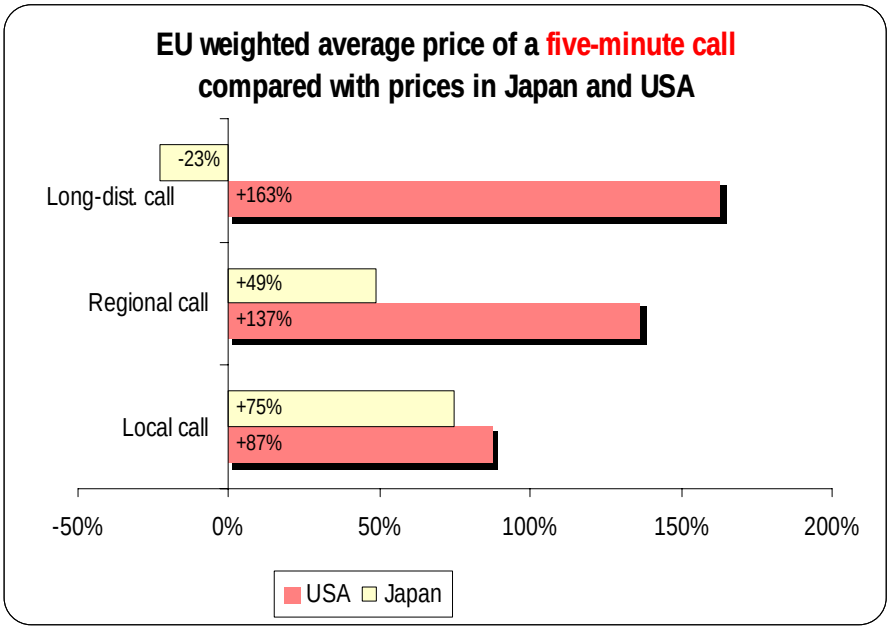


Chart 35



6.3. COMPARISON OF A 10-MINUTE INTERNATIONAL CALL TO USA AND JAPAN

The following charts show the price of a 10-minute international call (including VAT) during peak hours to Japan and USA and *viceversa*.

Figures are expressed in €-PPP at August 2000 value; they refer to the European cheapest and most expensive incumbent operators, the EU weighted average, DKK for Japan and AT&T for USA.

For Japan and the USA, "near EU country" is defined as the United Kingdom, and "far EU country" as Greece.

Chart 36

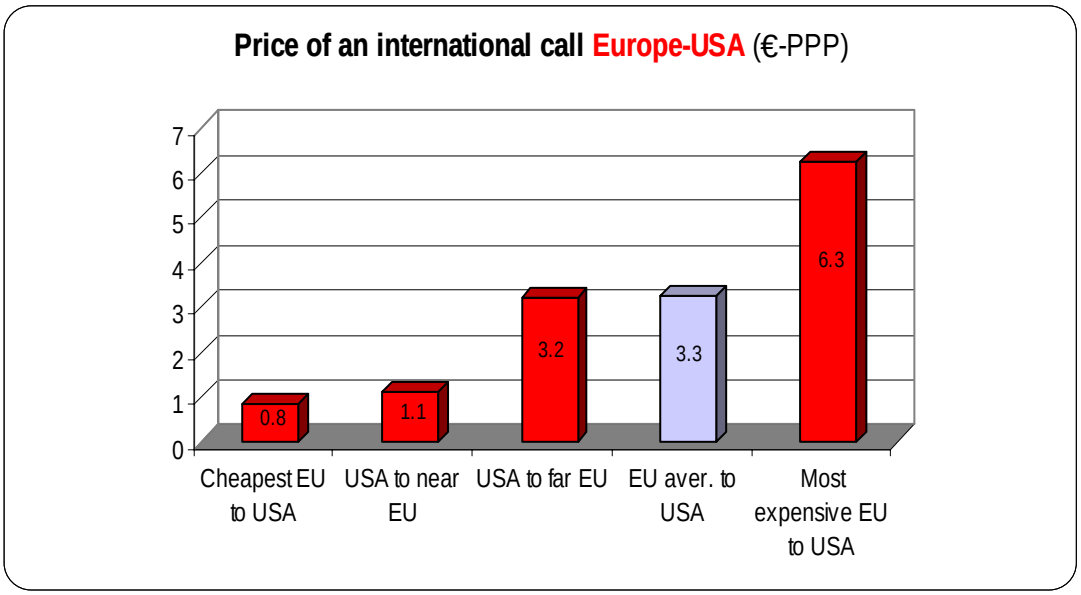
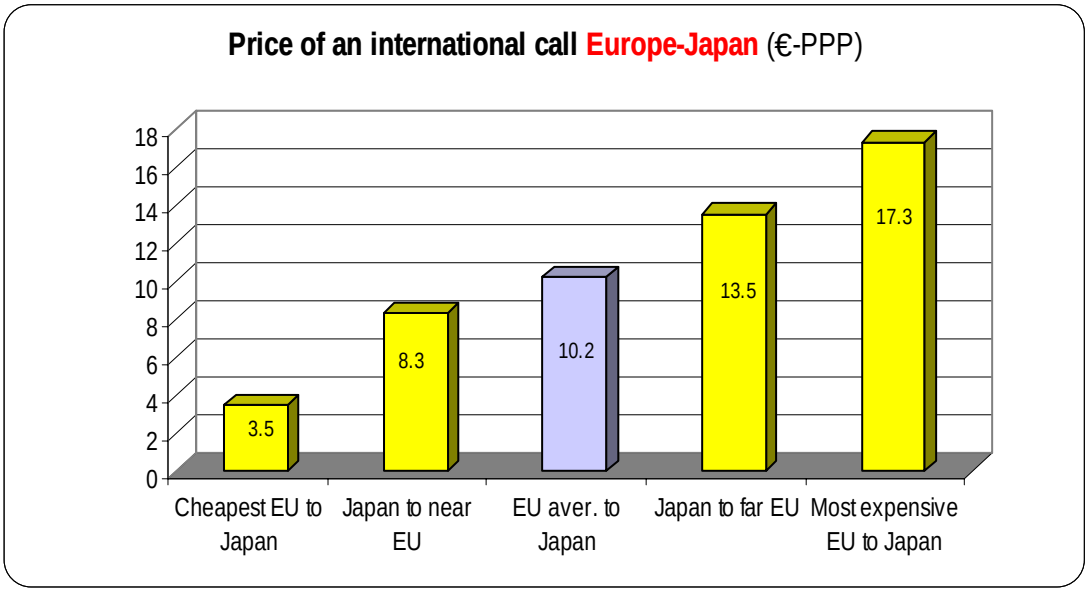


Chart 37



LICENSING

This section analyses the main economic indicators for competition in the fixed telecommunications market (voice telephony and network services): number of players, market shares, choice of operators for users, use by operators of the various possibilities for offering voice telephony (carrier (pre-)selection or direct access), licence fees for fixed services.

Public fixed voice telephony is defined as a service available to the public for the direct transport on a commercial basis of real-time speech via the public switched network, such that any user can use equipment connected to a network termination point at a fixed location to communicate with another user of equipment connected to another termination point.

Public fixed network services are defined as the conveyance of calls, messages and signals over a telecommunications network, including any necessary switching. They may be network interconnection services, which are provided to other network operators to enable calls and associated functions to be passed through interconnected networks, or basic retail network services, which are provided to customers such as end users or service providers.

The data on the number of operators offering telecommunications services include both network operators and service providers. Network operators are defined as operators that install, manage and operate their own (wire or wireless) telecommunications transmission network to provide public telephony services or public network services. Service providers are defined as operators that offer telecommunications services using mainly third-party networks. They may also manage, operate and control leased capacity[1]. These definitions may differ from those used in the national law of individual countries. In particular, in some countries service providers engage exclusively in reselling activities, while in others they may also operate leased capacity.

Incumbent operators are defined as telecommunications organisations which enjoyed special or exclusive rights granted by Member States (as defined by Commission Directive 90/388/EEC) and/or a de facto monopoly before liberalisation.

Depending on the national licensing regime, telecommunications operators[2] may have individual licences/authorisations or be subject to declaration/notification procedures, or may effectively operate in the market without being subject to any individual licence or declaration procedure[3]. Operators may have to apply (and pay) for a number of different licences or may have to pay for a licence with a wider scope than they require (i.e. nationwide), even if they do not make full use of it.

The following table shows the licencing regimes in the 15 Member States for the four main categories of fixed services.

[1] Operators engaged exclusively in reselling activities (call-back or calling card operators) or dealing only with marketing, billing, etc., are excluded.

[2] In the following, "operators" means both network operators and service providers; "authorised operators" means operators that have been granted an individual licence/authorisation or are subject to a declaration/notification procedure.

[3] This is the case for service providers in many countries (Austria, Germany, etc.) and for all types of public network operators offering voice telephony in the Netherlands and Denmark.

Table 1 Licensing regime for fixed public services

	Public fixed voice telephony services (not including network operation)	**Operation of public network and provision of network services** (not including voice telephony)	**Public voice telephony over a self-operated network**	**Public voice telephony and network services over a self-operated network**
B	VT	NET	NET + VT	
DK	Free (operators apply only for numbers)			
D	VT (class 4)[4]	NET (class 3)	NET + VT (class 4 + class 3)	
EL	Derogation	Not liberalised yet	Derogation	Derogation
E	VT (type A)	NET (type C1)	LL and VT on NET (type B1)	
F	VT (L34-1)	NET (L33-1)	LL and VT on NET (L34-1and L33-1)	
IRL	VT and LL on NET (General Licence)	NET[5] (Basic Licence)	VT and LL on NET (General Licence)	
I	VT	NET	VT on NET	VT on NET + NET
L	VT (type C)	NET (type B)	LL and VT on NET (type A)	
NL	VT (registration)	NET[6] (registration)	VT on NET (registration)	VT on NET + NET (registration)
A[7]	Notification	NET	VT on NET	VT on NET + NET
P	VT	NET	NET + VT	
FIN	Notification for fixed service	Notification for fixed network	Notification for fixed services and fixed network	
S	VT on NET (licence/registration)	NET (licence/registration)	VT on NET (Licence/registration)	VT on NET + NET (licence/registration)
UK[8]	LL and VT on NET (PTO licence)			

Legend:

Public fixed voice telephony (not including network operation) (VT)

Provision of national and international public voice telephony[9], not including the installation, operation and control of the operator's own telecommunications network (but including the operation and control of leased capacity). Simple call-back and calling card services and operators dealing only with marketing, billing, etc., are excluded.

[4] The class 4 licence refers to "voice telephony over a self-operated network", which should not be confused with the definition of self-operated network used in this report (i.e. owned self-controlled and self-operated network). In Germany non-self-operated network is restricted to services offered by resellers who have no de facto control of a self-operated network.

[5] Holders of a general licence are also permitted to operate a public network (and provide network services), but a basic licence is sufficient.

[6] In the Netherlands, the licence to provide a public network service does not give operators public network status, but gives them the right to install and manage their own network. The public network licence is linked to voice telephony services (VT on NET).

[7] Austria does not have a specific licence category for voice telephony service providers, but a licence for the operation of transmission capacity for public voice telephony.

[8] Under the new licensing scheme in the UK, all former International Facilities Licences (that allowed licensees to install a cross-border network and to offer international calls) and all former Public Telecommunications Operator (PTO) licences (that allowed licensees to install a national network and to offer domestic services) have been replaced by new standard PTO licences, allowing licensees to offer both domestic and international services. By the same token, operators with a local licence now have the right to offer international services.

[9] Public fixed voice telephony is defined as a service available to the public for the direct transport on a commercial basis of real-time speech via the public switched network, such that any user can use equipment connected to a network termination point at a fixed location to communicate with another user of equipment connected to another termination point.

Operation of public network and provision of network services (not including voice telephony) (NET)

The installation, control and operation of the operator's own public network[10], including the right to offer national and international network services[11] to the public (not including the provision of voice telephony).

Public voice telephony on a self-operated network (not including network services) (VT on NET)

Provision of public fixed voice telephony over a network owned, controlled and operated by the operator, excluding the provision of network services.

Public voice telephony and network services on a self-operated network (VT and LL on NET)

Provision of public fixed voice telephony and public fixed network services over a network owned, controlled and operated by the operator.

The data presented below have been provided by the national regulatory authorities and indicate the position at August 2000; where the data on operators' market shares were not available from the NRA, other information sources were used.

1. PUBLIC FIXED VOICE TELEPHONY

This section analyses the fixed voice telephony market, in terms of the number of authorised operators, operators that are actually offering voice telephony services, the percentage of the population with a choice of operators, the incumbent's market share, and the facilities used by the operators to provide public voice telephony services.

Figures in Chart 3,6 and 7 should be read service by service (local, long-distance and international call markets) and not as country totals, since the same operator is usually authorised to offer more than one type of service.

Greece is not considered in this section as it has a derogation until 31 December 2000.

Chart 1 shows the number of local and national operators authorised to offer public fixed voice telephony: fixed network operators, mobile operators, service providers and cable television (CATV) operators. The number of local operators is not strictly comparable between Member States, since it varies considerably between countries depending on the division of national territory into local areas.

Local operators are authorised to offer telecommunications services only to users located in specific areas (to whom they provide local calls as well as long-distance and international calls through interconnection agreements with other operators). National operators are authorised to offer telecommunications services without any geographical restriction. They may provide all types of telephony services (local, long-distance and international calls) to users located throughout the national territory. In the following charts, "national operator" means an operator who has been granted either a national licence/authorisation or a licence under a licensing scheme which does not specify the geographic coverage.

The number of operators authorised to offer voice telephony indicates the potential for competition in the market rather than the current level of competition. For this reason, an estimate of the number of operators actually offering public voice telephony is given. These figures do not show to what extent the operators are offering services. Many new entrants initially provide only services to

[10] Public network is defined as a telecommunications network used, in whole or in part, for the provision of publicly available telecommunications services.

[11] Public fixed network services are defined as the conveyance of calls, messages and signals over a telecommunications network, including any necessary switching. They may be network interconnection services, which are provided to other network operators to enable calls and associated functions to be passed through interconnected networks, or basic retail network services, which are provided to customers such as end-users or service providers.

business users in the main cities, even if they have a national licence allowing them to offer all types of services throughout the country.

Belgium, Denmark, Germany, Ireland, Luxembourg, the Netherlands and Sweden do not distinguish between local and national operators: all authorised operators are permitted to offer these services throughout the country[12].

Data for Sweden include both licensed and notified operators[13].

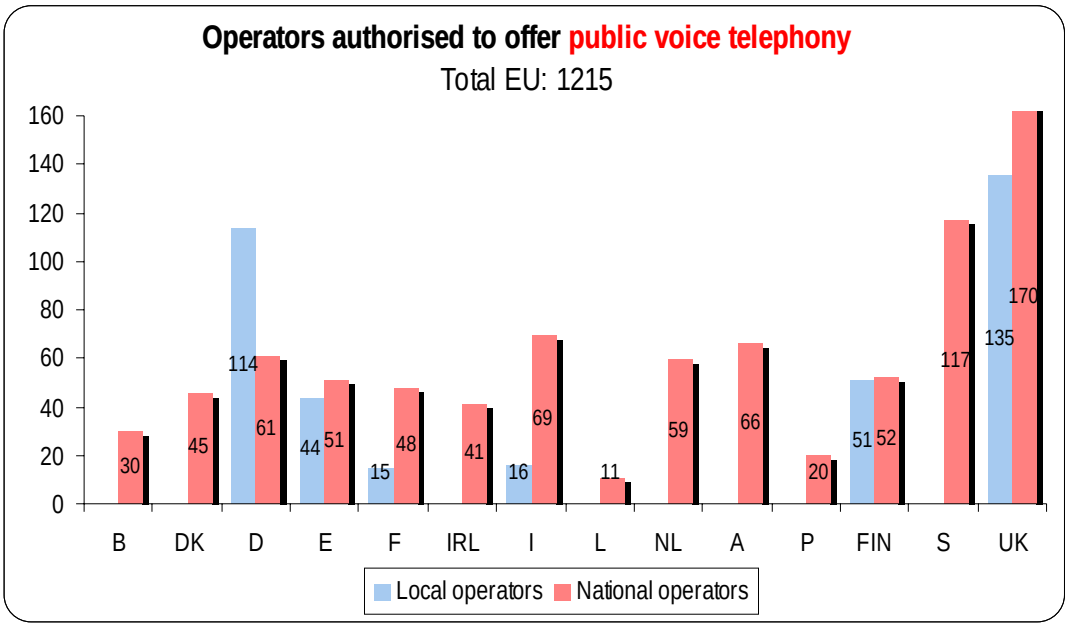
In Finland, 46 of the 66 regional operators are local incumbents and belong to the Finnet Group.

In Denmark, operators are not subject to any individual licence/authorisation requirements or notification procedures. The number of operators that have been allocated an access code has been used as proxy for the number of authorised operators.

In the United Kingdom, 90% of the 135 regional public telecommunications operators (PTOs), which relate to cable franchises, are held by two companies.

The figures for the Netherlands include only operators that have started operations.

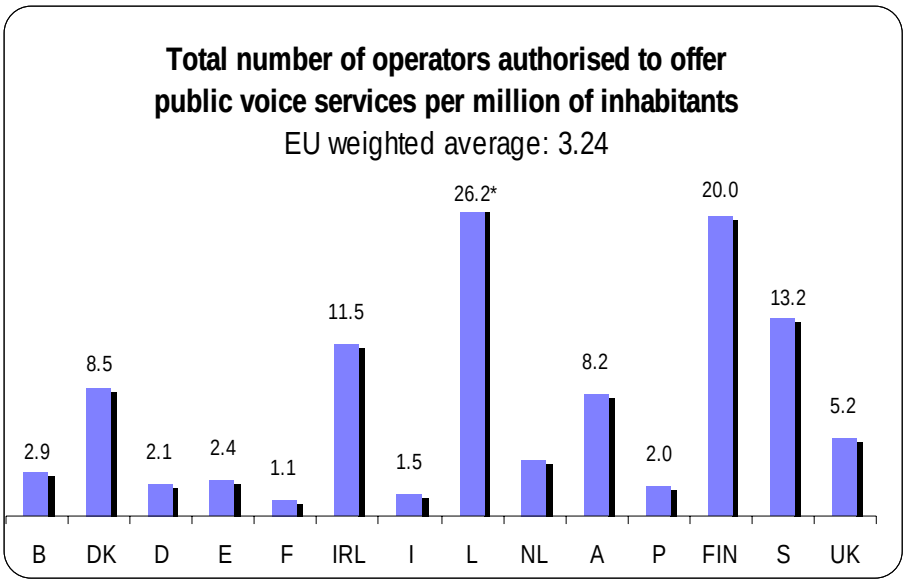
Chart 1



[12] The legal framework for the licensing regime in Austria does not distinguish between local and national coverage of licences, although operators can apply for a restricted scope of the network and/or the services provided.

[13] According to the Swedish licensing regime, a notification is required for the provision (within a publicly available telecommunications network) of telecommunications services (fixed telephony, mobile services, leased lines, etc.) which require allocation of capacity from the telephony numbering plan. An individual licence is required for the provision of telecommunications services if the activity is considered to be of "considerable scope" with regard to the areas covered, the number of users or other comparable factors.

Chart 2

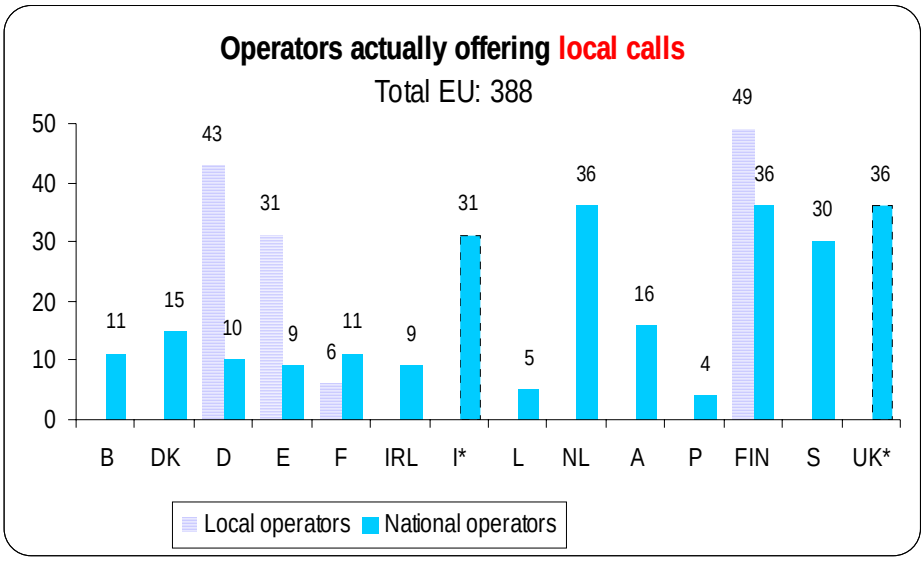


1.1. LOCAL CALLS MARKET

In Finland, 46 of the 66 regional operators are local incumbents and belong to the Finnet Group.

The figures for the Netherlands do not include 23 operators for which the national authorities have no information on the types of services provided.

Chart 3

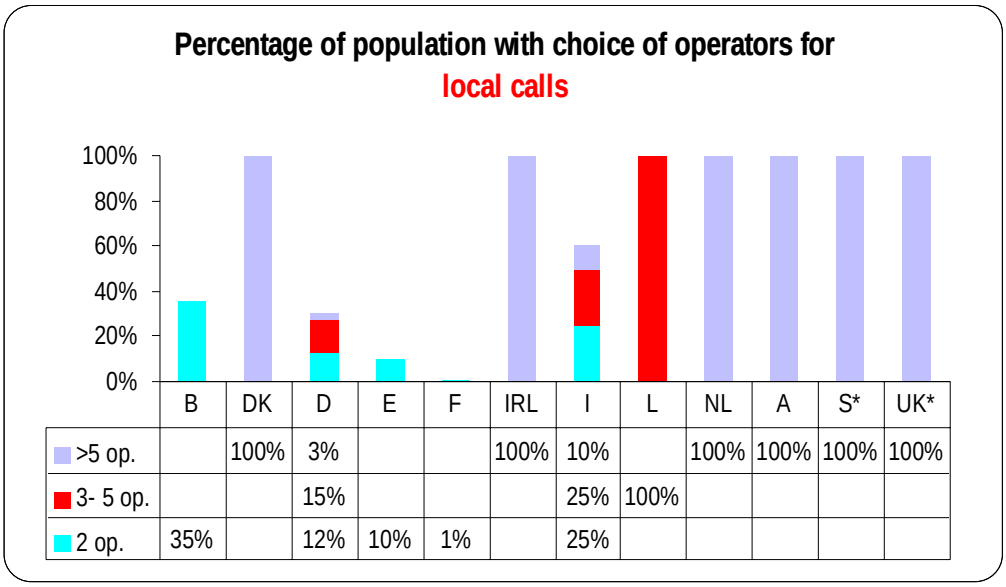


* The figures for Italy and the United Kingdom do not distinguish between local and national operators.

Chart 4 shows the estimated percentage of the population with a choice between 2 operators, 3 to 5 operators and more than 5 operators for local calls. Chart 8 indicates the same for long-distance and international calls.

Data are not available for Finland and Portugal.

Chart 4



	B	DK	D	E	F	IRL	I	L	NL	A	S*	UK*
>5 op.		100%	3%			100%	10%		100%	100%	100%	100%
3- 5 op.			15%				25%	100%				
2 op.	35%		12%	10%	1%		25%					

* The figures for Sweden and the United Kingdom refer to the overall call market (local, long-distance and international).

Chart 5 shows the incumbent operators' share of the local call market estimated on the basis of retail revenues.

The 1999 figures for Austria are estimates of the incumbent's share of the three call markets (local, long-distance and international) taken together.

For Finland, the figures refer to the combined market share of the two incumbents (Sonera and Finnet groups).

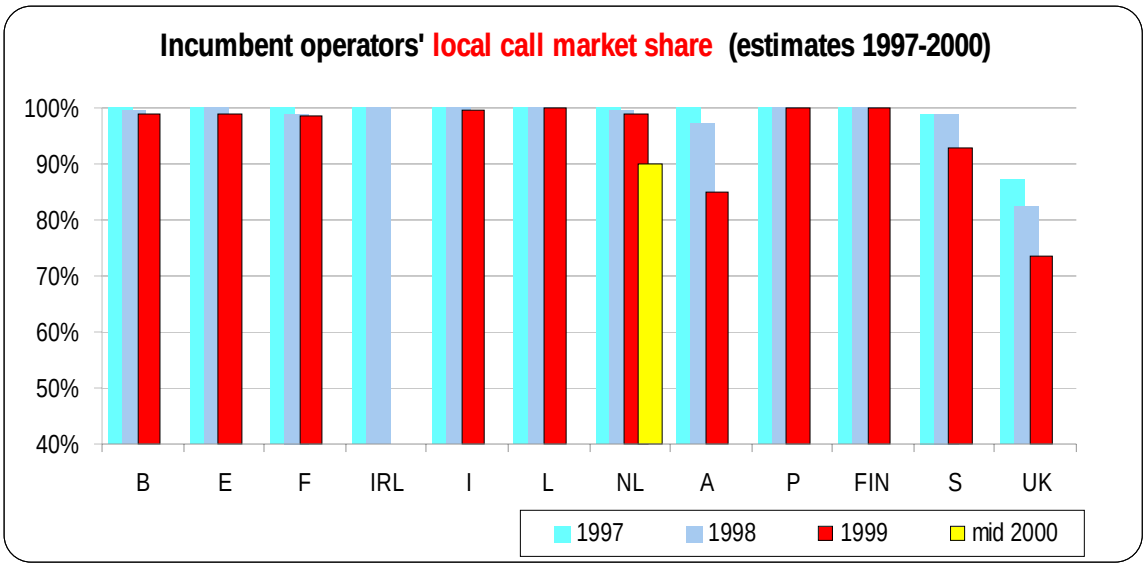
The most recent market share estimate for Ireland refers to 1998.

The 1998 market share for France was calculated as a share of the three call markets (local, long-distance and international) taken together.

The only figures available for Denmark and Germany are based on call minutes, and have therefore not been included in the charts. The main finding for Denmark is that from 1997 to mid-2000 the incumbent operator's share of the national call market (local plus long-distance calls) fell from 100% to 63%. The main finding for Germany is that from 1997 to the end of 1999 the incumbent's share of the local call market fell from 100% to about 95%.

These figures are estimates provided by the NRAs, except for Belgium.

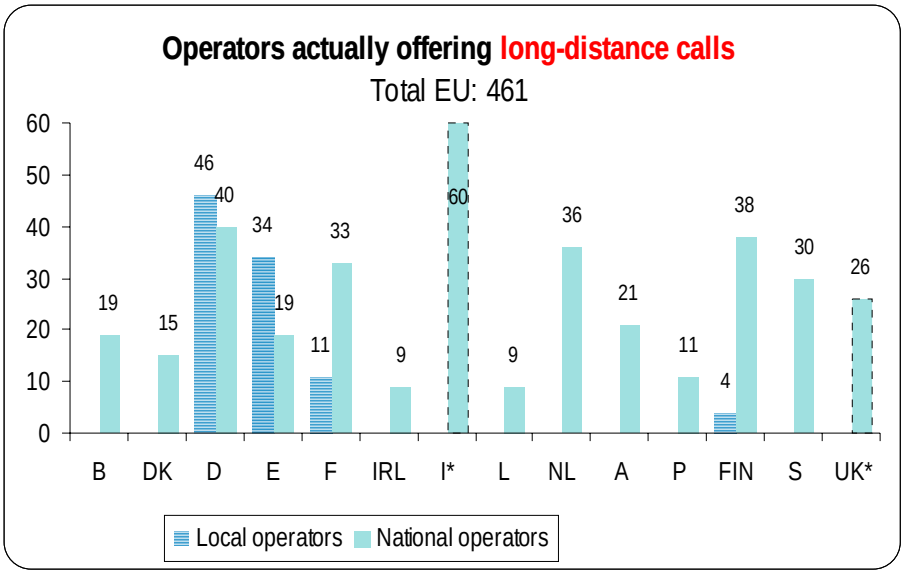
Chart 5



1.2. LONG-DISTANCE AND INTERNATIONAL CALLS MARKET

The figures for the Netherlands do not include 23 operators for which the national authorities have no information on the types of services provided.

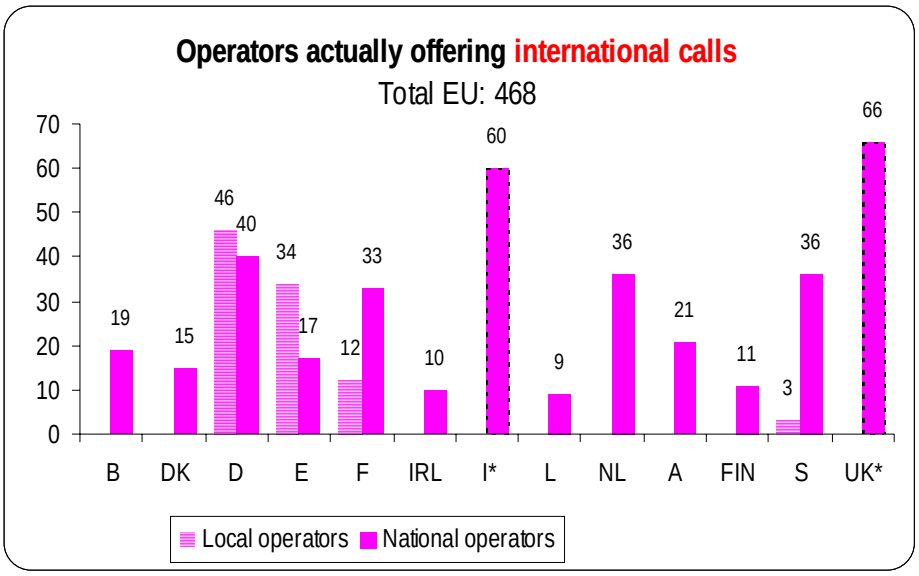
Chart 6



* The figures for Italy and the United Kingdom do not distinguish between local and national operators.

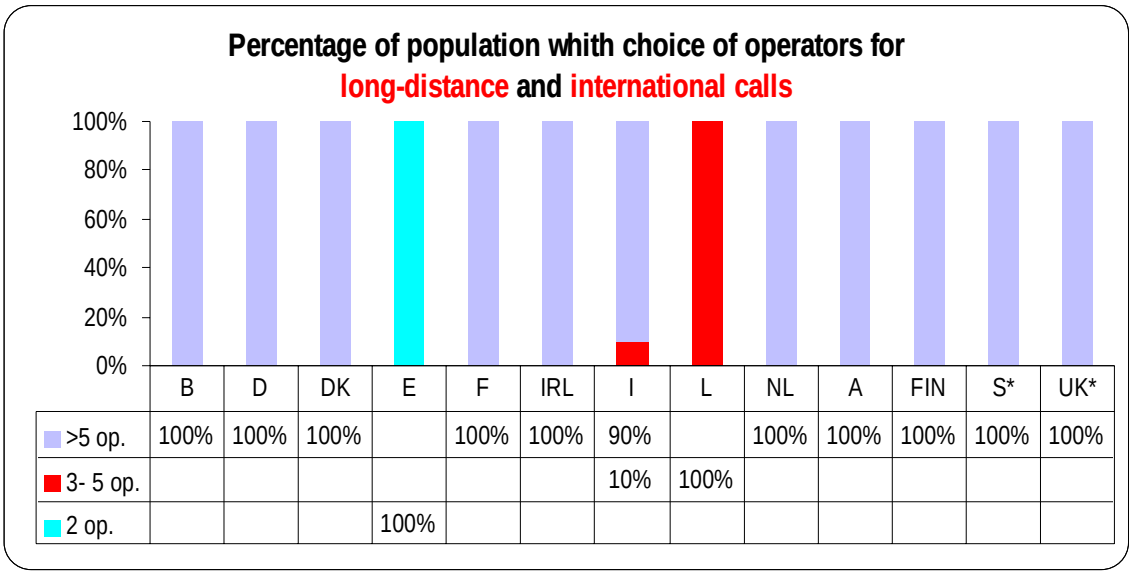
Because of its small size, no distinction is made in Luxembourg between the local and long-distance call markets.

Chart 7



* The figures for Italy and the United Kingdom do not distinguish between local and national operators.

Chart 8



	B	D	DK	E	F	IRL	I	L	NL	A	FIN	S*	UK*
>5 op.	100%	100%	100%		100%	100%	90%		100%	100%	100%	100%	100%
3- 5 op.							10%	100%					
2 op.				100%									

* The figures for Sweden and the United Kingdom refer to the overall call market (local, long-distance and international).

Chart 9 and Chart 10 show the incumbent operators' shares of the long-distance call market estimated on the basis of retail revenues.

Because of its small size, no distinction is made in Luxembourg between the local and long-distance call markets.

The 1999 figures for Austria are estimates of the incumbent's share of the three call markets (local, long-distance and international) taken together.

The 1998 market share for France was calculated as the aggregate share of the total voice telephony market (local, long-distance and international).

The most recent market share estimate for Ireland refers to 1998.

The only figures available for Denmark and Germany are based on call minutes, and have therefore not been included in the charts. In Germany, the incumbent operator's aggregate share of the long-distance and international call markets in terms of minutes was less than 60% (at the end of 1999); however, in terms of revenues it is expected to be higher. In Denmark, the incumbent operator's share of the international call market was 45% in mid-2000 (see comment on Chart 5 for the domestic market share).

These figures are estimates provided by the NRAs, except for Belgium.

Chart 9

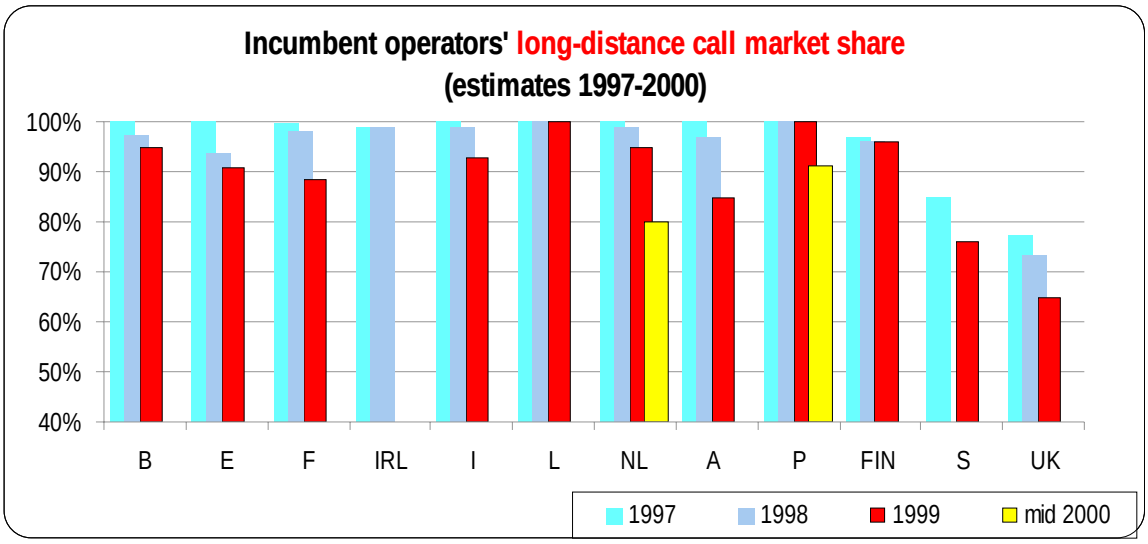
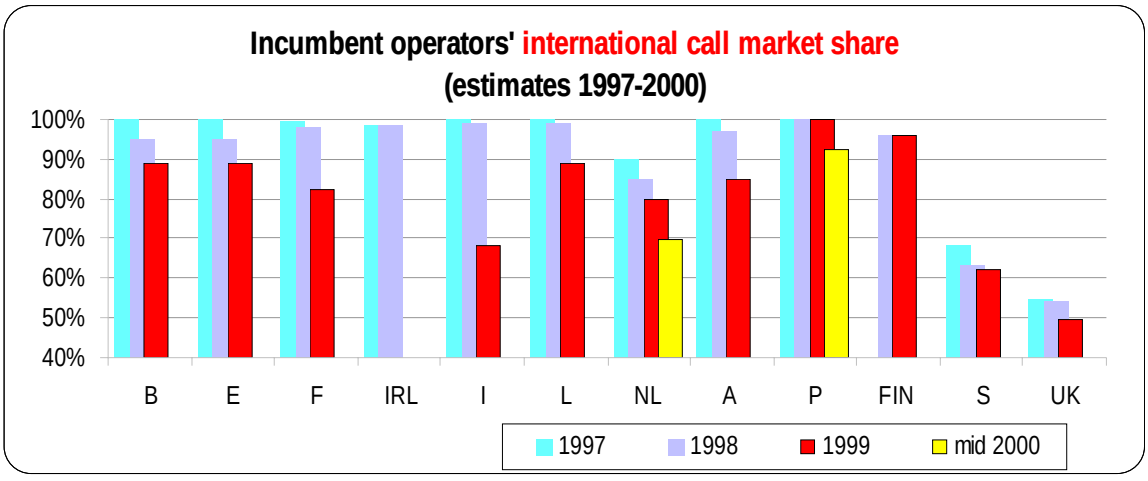


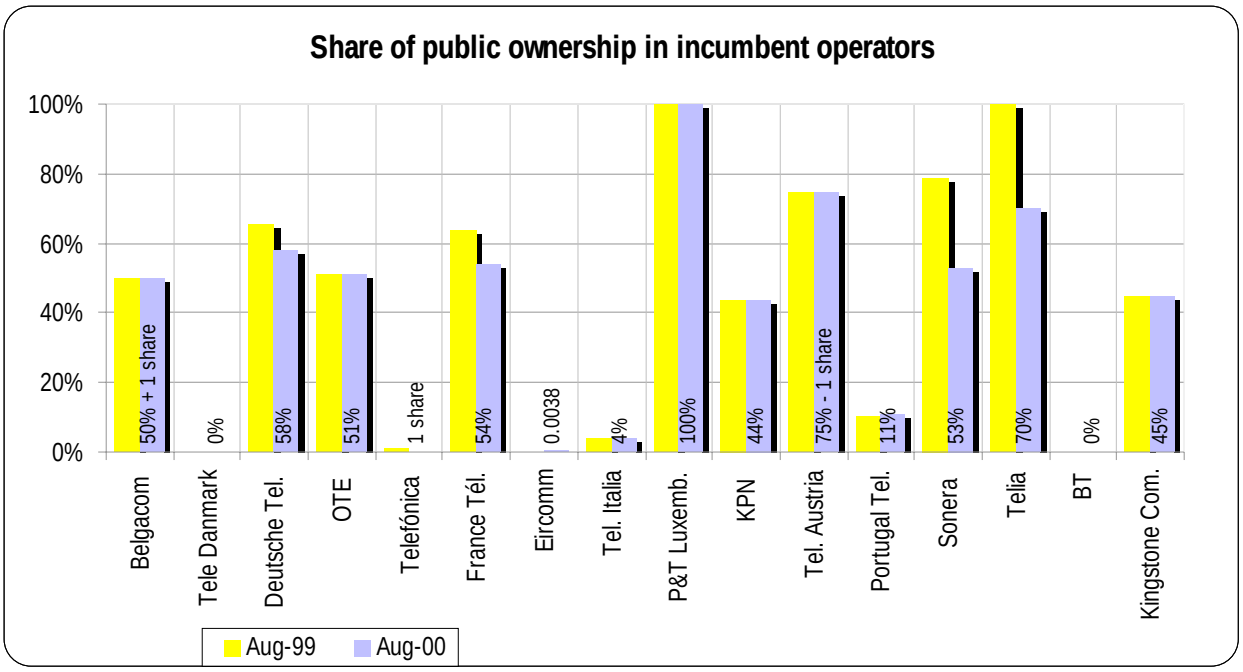
Chart 10



1.3. SHARE OF PUBLIC OWNERSHIP OF INCUMBENT OPERATORS

In order to provide a complete overview of the players in the EU telecommunications market, the following chart shows the degree of public ownership of the incumbent operators on the fixed market.

Chart 11



1.4. FACILITIES USED BY NEW OPERATORS TO PROVIDE VOICE TELEPHONY TO RESIDENTIAL USERS

This section shows the estimated number of alternative operators using carrier selection, carrier pre-selection or direct access to provide voice telephony services.

These figures are estimates provided by the national regulatory authorities and refer to August 2000.

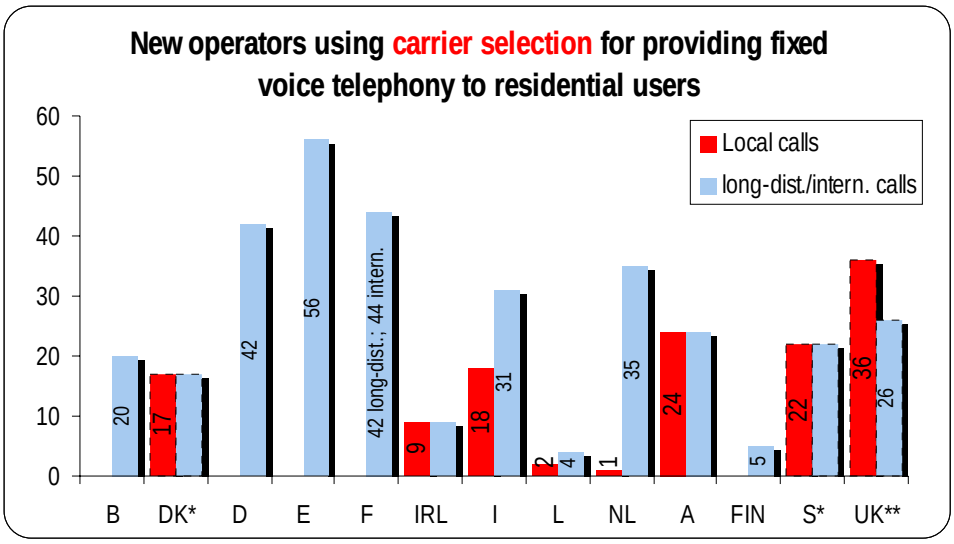
The following three charts should be read separately and not summed up as country totals, since most operators use more than one means of providing call services.

As indicated in the section on numbering, carrier selection and pre-selection are not yet available for local calls in Belgium, Germany, France and Finland.

Greece has been granted a deferment for the implementation of carrier selection and carrier pre-selection. Portugal and Spain have been granted deferments for the implementation of carrier selection.

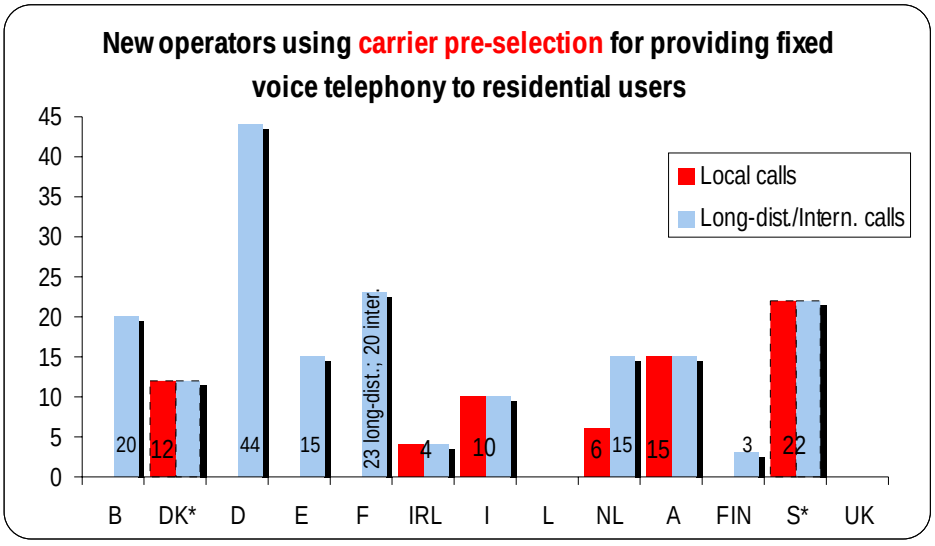
Because of its small size, no distinction is made in Luxembourg between local and long-distance calls.

Chart 12



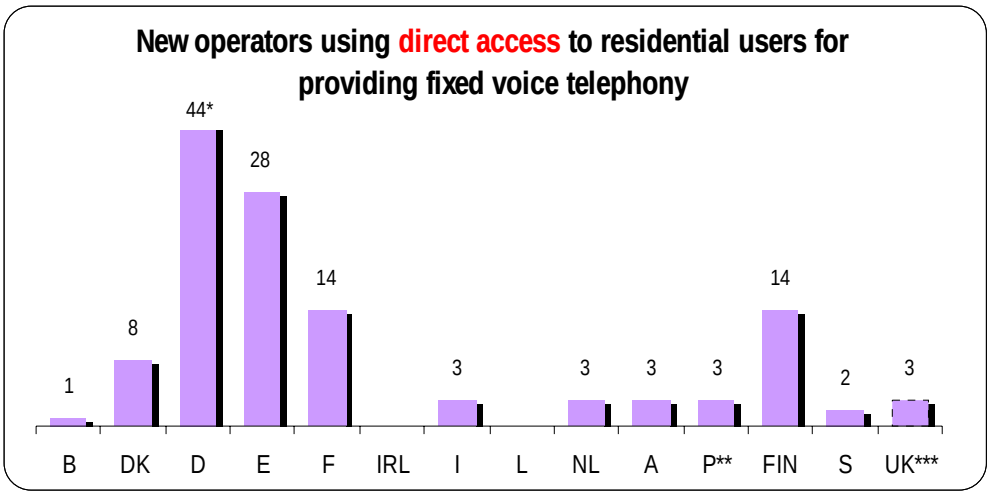
* The figures for Denmark and Sweden do not distinguish between the type of call.
** The figures for the United Kingdom refer to both residential and business users.

Chart 13



* The figures for Denmark and Sweden do not distinguish between the type of call.

Chart 14



* The value for Germany is not to scale.
** The figure for Portugal refers to the provision of domestic voice telephony. One new operator is using direct access to provide international fixed voice telephony.
*** The figure for the United Kingdom refers to both residential and business users.

2. PUBLIC FIXED NETWORK

This section analyses the number of network operators with a public network licence and/or authorised to offer network services (conveyance of calls, messages and signals over a telecommunications network, including any necessary switching).

The data presented below have been provided by the national regulatory authorities and give the position at August 2000.

The figures include all types of operator authorised to install and operate a public fixed network and/or to offer network services to the public: network operators, CATV operators, mobile and satellite operators (for the fixed part of their networks).

In Chart 15 the distinction between local and national public network operators concerns the geographical scope of the network, while the provision of network services is not usually subject to any geographical limitation. In the following, "local operators" means operators whose network does not cover the whole national territory (whatever the geographical scope of the service). Information on the number of operators actually offering network services is not included, since these data are not available for most of the Member States.

A licence to operate a local/regional public network does not necessarily imply the existence of local network access to customers ("the last mile"). See local loop section for more details.

Belgium, Denmark, Ireland, Luxembourg, the Netherlands and Sweden do not distinguish between local and national authorisations: all authorised operators may install and operate a national network and offer services throughout the country[7].

The data for Sweden include both licensed and notified operators.

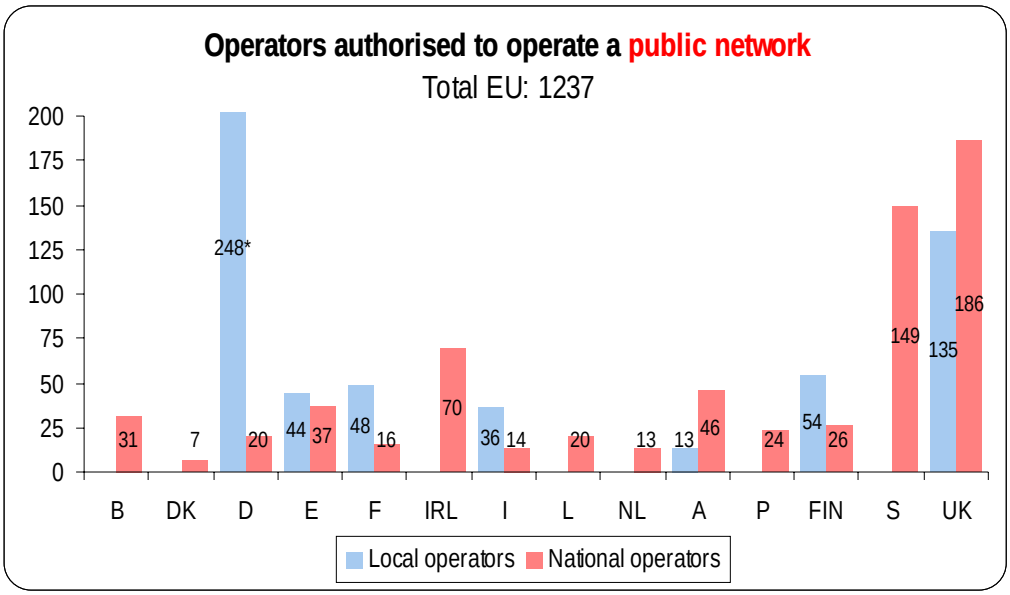
In Finland, 46 of the 66 regional operators are local incumbents and belong to the Finnet Group.

The figures for Denmark refer to operators that have actually started operations, since they are not subject to any individual licence/authorisation requirements or notification procedures.

In the United Kingdom, 90% of the 135 regional public telecommunications operators (PTOs), which relate to cable franchises, are held by two companies.

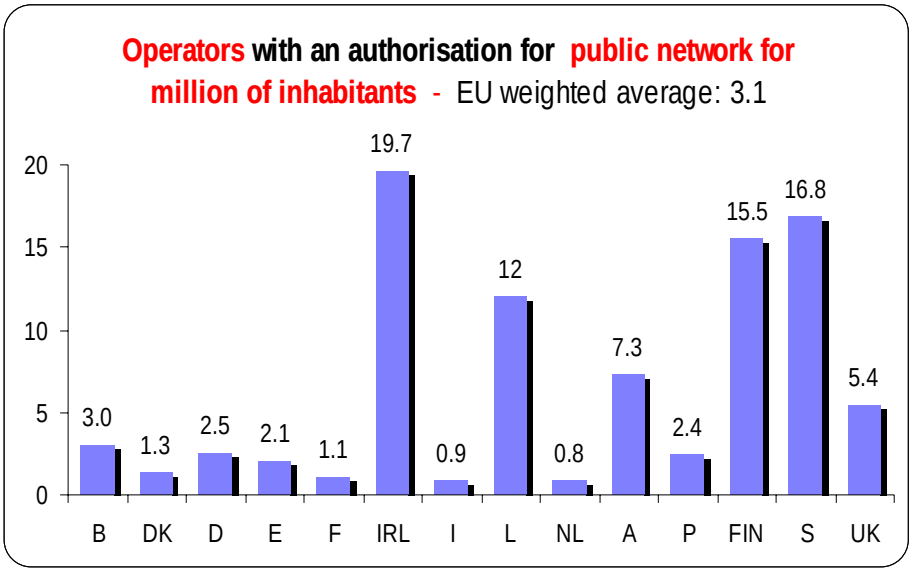
The figures for the Netherlands refer to operators that have started operations.

Chart 15



* The figures for Germany are not to scale

Chart 16



3. ADMINISTRATIVE AND NUMBERING FEES FOR THE PROVISION OF PUBLIC VOICE TELEPHONY AND PUBLIC NETWORK SERVICES

This section provides data on Member States' administrative and numbering fees for public voice telephony and public network services licences (including VSAT network services). The data have been provided by the national regulatory authorities and give the position in August 2000. See appendix for details on the euro exchange rates used in this section.

Administrative fees (Table 2) are fees charged to cover the costs of examining an application for a licence, granting the relevant authorisation and verifying compliance with the terms and conditions set once the service or network is operational.

The categorisation of administrative fees is closely linked to the general licensing framework applicable in the individual countries. The categories of administrative fees will depend on whether market entry is subject to an individual licence or a notification under a general authorisation scheme (see Table 1 for more details).

Numbering fees are fees applied by many Member States in view of the relative scarcity of numbering resources.

Table 3 sets out for each Member State the different kinds of fees charged for the main categories of numbers needed by each operator to provide public voice telephony services: standard telephone numbers (ITU-T Recommendation E.164) (for subscribers directly connected to the operator), carrier selection codes (to select the operator) and signalling point codes[14] (for interconnection with other networks at national (NSPC) and international (ISPC) level).

Ireland, Austria, Sweden, Portugal and the United Kingdom do not charge for such numbers, although often the right to use numbers is implicitly included in the licensing fee. Greece is not considered here because liberalisation is not yet completed.

The fees/charges paid by operators for providing public **VSAT network services** - VSAT (Very Small Aperture Terminal) refers to earth stations with an antenna diameter of less than about 3.8 meters, used mainly for data communications between fixed locations - are shown in Table 4, and refer to the provision of VSAT networks and services in the 200 kHz-1 MHz band using up to 100 stations, bi-directional, with or without frequency coordination, with connection to the public switched telephone network.

[14] Signalling Point Codes (SPCs) are used in public telephone networks using CCITT Signalling System No 7 (SS7). SPCs are the addresses of the signalling points. Two types of SPC are usually individually assigned to network operators: International SPCs and National SPCs. ISPCs are used in international transit networks, e.g. to address networks which connect the various networks in a specific country or to identify the national gateways of the various networks.

Table 2 Administrative fees (August 2000, €)

	Public fixed voice telephony services (not including transmission capacity)		**Operation of public network and provision of network services** (not including voice services)		**Public voice telephony on a self-operated network** (not including network services)		**Public voice telephony and network services on a self-operated network**	
	Single payment	**Annual fee**	**Single payment**	**Annual fee**	**Single payment**	**Annual fee**	**Single payment**	**Annual fee**
B	8 676	7 436 if SMP : 12 395	12 394	8 676 if SMP : 12 395	21 070	16 112 if SMP: 29 748	21 070	16 112 if SMP: 29 748
DK	0	0	0	0	0	0	0	0
D Geographic licence: Nationwide Local	1 533 687 1 022	0	1 533 687 1 022	0	6 952 707 2 044	0	6 952 707 2 044	0
Trunk line licence	5 112 per trunk line	0	306/km [15] (min. 1 022)					
Local line licence	51 per local line (min. 1 022)	0	102 per local line (min. 1 022)		153 per local line (min. 2 044)	0	153 per local line (min. 2 044)	0
E[16]	0	0.15% of relevant turnover	0	0.15% of relevant turnover	0	0.15% of relevant turnover	0	0.15% of relevant turnover
F > 5 regions	114 336	114 336	266 785	266 785	381 121	381 121	381 121	381 121
≤ 5 regions	45 734	45 734	76 224	76 224	121 958	121 958	121 958	121 958
≤ 1 region	22 687	22 687	38 112	38 112	60 979	60 979	60 979	60 979
≤ 1 department	15 244	15 244	15 244	15 244	30 488	30 488	30 488	30 488
≤ one city of 100 000 inhabitants	7 622	7 622	7 622	7 622	15 244	15 244	15 244	15 244
If SMP	Not relevant	Not relevant	Double fees	Double fees	Double fees	Double fees	Double fees	Double fees
IRL	12 497	1 015 or 0.2% of turnover>635 000	3 175	1 015 or 0.2% of turnover>635 000	12 497	1 015 or 0.2% of turnover >635 000	12 497	1 015 or 0.2% of turnover >635 000
I[17] Whole country	51 640	61 968	61 968	103 280	56 804	61 969	118 772	165 249
≤ 10 million inh.	20 656	25 820	20 656	51 640	25 820	25 820	46 472	77 460
≤ 200 000 inh.	10 328	10 328	10 328	25 280	15 492	10 328	25 820	35 608

Table 2 Administrative fees (cont'd)

	Public fixed voice telephony services (not including transmission capacity)		**Operation of public network and provision of network services** (not including voice services)		**Voice telephony on a self-operated network** (not including network services)		**Voice telephony and network services on a self-operated network**	
	Single payment	**Annual fee**	**Single payment**	**Annual fee**	**Single payment**	**Annual fee**	**Single payment**	**Annual fee**
L	620	37 184 plus % of turnover (min. 0.15% max. 0.30%)	6 197	12 394 plus % of turnover (min. 0.10% max. 0.25%)	7 436	49 578 plus % of turnover (min. 0.20% max. 0.35%)	7 436	49 578 plus % of turnover (min. 0.20% max. 0.35%)
NL	363	1 724 if SMP : 890 454	363	862 if SMP: 925 000	363	2 042 if SMP: 923 443	726	2 904 if SMP: 1 231 106
A[18]	0	0	5 087	0.12% of turnover	5 087	0.12% of turnover	10 174	0.12% of turnover
P	9 976	9 976	9 976	9 976	9 976	9 976	19 952	19 952
FIN	0	0	0	0	0	0	0	0
S Notification[19]	0	- 115 for turnover <343 896 - 2 867 for turnover >343 896	0	- 115 for turnover <343 896 - 2 867 for turnover >343 896	0	- 115 for turnover <343 895 - 2 867 for turnover >343 895	0	- 115 for turnover <343 895 for each relevant activity - 2 867 for turnover >343 895 for each relevant activity
Licence	11 463	- 0.15% of turnover (min. 5 733) - Incumbent: extra 0.5% of voice telephony turnover (max 11 467 890)	11 463	- 0.15% of turnover (min. 5 733)	11 463	- 0.15% of turnover (min. 5 733) - Incumbent: extra 0.5% of voice telephony turnover (max 11 467 890)	22 926	- 0.15% of turnover for each relevant activity (min. 11 466) - Incumbent: extra 0.5% of voice telephony turnover (max 11 467 890)

Table 2 Administrative fees (cont'd)

	Public fixed voice telephony services (not including transmission capacity)		**Operation of public network and provision of network services** (not including voice services)		**Voice telephony on a self-operated network** (not including network services)		**Voice telephony and network services on a self-operated network**	
	Single payment	**Annual fee**	**Single payment**	**Annual fee**	**Single payment**	**Annual fee**	**Single payment**	**Annual fee**
UK[20]	59 975	- new entrants: 4 498 for the first two years, then 4 498 if turn. >7 496 768 - max 0.08% if turnover >7 496 768	59 975	new entrants: 4 498 for the first two years, then 4 498 if turn. >7 496 768 - max 0.08% if turnover >7 496 768	59 975	new entrants: 4 498 for the first two years, then 4 498 if turn. >7 496 768 - max 0.08% if turnover >7 496 768	59 975	new entrants: 4 498 for the first two years, then 4 498 if turn. >7 496 768 - max 0.08% if turnover >7 496 768

[15] Straight-line distance between the points to be connected.

[16] According to the General Telecommunications Act, the exact amount of the annual fees (percentage value) will be fixed every year by Parliament, taking into account the need to cover the administrative costs of the licensing management and controls system. The annual fees cannot be higher than 2‰ . For 1999 the value set is 0.15%.

[17] An annual fee of 0.35‰ of the relevant turnover is payable to contribute to the overall costs of the regulator.

[18] For all types of operator, an annual fee (depending on turnover and market share) is payable to contribute to the overall costs of the regulator. The annual percentage varies between 0.1% and 0.2% of the Austrian turnover. In 1999 it was 0.12%.

[19] A licence is required if an operator's activity is considered "significant" regarding the area of distribution, the number of users and similar factors. These operators typically have a market share of 10-15% (never less than 5%).

[20] Fees for public telecommunications operator (PTO) licence.

Table 3 Numbering fees (€)

(**S** = one-off fee; **A** = annual fee; where relevant: **S(r)/A(r)** = one-off/annual fee in case of allocation of a number that had been reserved before)

	B	**DK**	**D**[15]	**E**	**FIN**	**F**	**I**	**L**	**NL**
Standard telephone numbers (E.164)	per block of 10 000 numbers **S:** 381.76 **A:** 128.9	per number (8-digit numbers) **A:** 0.2644	per block of 1 000 10-digit numbers **S:** 512.91 per block of 1 000 11-digit numbers **S:** 51.13	per number **A:** 0.03	per number **A:** 0.34	per number **A:** 0.0228 reservation **A:** 0.0114	per number **A:** 0.01 reservation **A:** 0.005	per number part of a block of 10 000 numbers **S:** 0.12 **A:** 0.12 per number in amount < a block: **S** 61 97 + n*0.24 **A:** 61 97 + n*0.24	per number **S:** 0.027 **A:** 0.022 reservation **S:** 0.027 **A:** 0.009
Carrier selection code	4 digits **S**: 1 266.74 **A**: 12 657.44	4 digits **A:** 2 644.42 5 digits **A:** 264.44	4 digits **S:** 512.91	per number **A:** 0.03 x a factor indicating the number of 8-digit numbers occupied in the numbering plan	**International** **A**: 3 digits 92 503 **A:** 4 digits 18 501 **A:** 5 digits 3 700 **Long distance** **A:** 3 digits 92 503 **A:** 4 digits 18 501 **A:** 5 digits 3 700	**reservation** **A:** 4 digits 22 867 **A:** 1 digit 228 674 **allocation** **A:** 4 digits 45 734 **A:**1 digit 457 347	**reservation** **A:** 4 digits 51 640 **A:**5 digits 25 820 **allocation** **A:** 4 digits 103 280 **A:** 5 digits 51 640	**S:** 1 239 **A:** 1 239	**reservation** **S** 908 **A:** 227 **allocation** **S:** 908 **S(r):** 454 **A:** 454
International Signalling Point Codes (for international interconnection)	**S:** 381.76 **A:** 12 657.44	**A:** 26 444	**S:** 383		**A:** 1 682			**S:** 991 **A:** 495	**reservation** **S:** 908 **A:** 227 **allocation** **S:** 908 **S(r):** 454 **A:** 454
National Signalling Point Codes (for national interconnection)	**S:** 381.76 **A:** 0		**S:** 192		per group of 10 codes **A:** 34			**S:** 991 **A:** 495	**reservation** **S:** 908 **A:** 227 **allocation** **S:** 908 **S(r):** 454 **A:** 454

[15] Numbers taken into use after July 1997.

Table 4: Fees/charges for VSAT networks (August 2000, €)

Fees for VSAT networks and services in the 200 kHz-1 MHz band, up to 100 stations, bi-directional, with/without frequency coordination, with PSTN connection.

	INITIAL (ONE-OFF) FEES/CHARGES	ANNUAL FEES/CHARGES
B	**Administrative fees**: €770.95 (€1 797.23 with frequency coordination)	**Frequency fees** per station: €515.62
DK	**Administrative fees**: 0 **Frequency fees**: 0	**Administrative fees** per station: €14.75 **Frequency fees** per station: €23.26
D	**Administrative fees**: €7 665 for the network licence (Class 2) **Frequency fees** : €15	**Frequency fees** per station: € 17
EL	**Administrative fees** per station: €960.63 (hub station) €96.63 (peripheral station)	**Frequency fees** per station: €640.42 (hub station) €96.6 (peripheral station)
E	**Administrative fees**: €60 for the network licence	**Frequency fees** per station: 0.15% of turnover per bandwidth (per station): €1.07 per kHz (minimum €60)
F	**Administrative fees**: €3 811 up to 4 stations €6 098 from 5 stations	**Administrative fees**: €457 up to 4 stations €1 524 from 5 to 300 stations **Frequency fees** per station: € 76
IRL	**Administrative fees**: 0 **Frequency fees**: 0	**Administrative fees**: 0 **Frequency fees**: 0
I	**Administrative fees**: €516 for the service licence (€2 064 with frequency coordination) €516 for the network licence **Frequency fees**: €2 064 for up to 10 stations €5 160 for 11 to 100 stations	**Frequency fees** Per station: €103 per bandwidth: €5 160
L	**Administrative fees**: €6 197 for the network licence **Frequency fees**: €6 448	**Administrative fees**: €12 394 + 0.10%-0.25% of turnover[21] for the network licence
NL	**Administrative fees**: €363 (registration for the network) **Frequency fees**: €545 (€1 090 with frequency coordination)	**Administrative fees**: €2042 (registration for network) **Frequency fees** per station: €472
A	**Administrative fees**: €98 (€196 with frequency coordination)	**Frequency fees** per station: from €174 to €7 849 according to power [22]
P	**Administrative fees**: €10 175.5 for licensing and registration of a public network €7 481.97 for registration of provision of a public telecommunications service **Frequency fees** €166.47 for each station licensing not needing coordination €499.45 for each station licensing requiring coordination	**Administrative fees**: €10 175.5 for licensing and registration of a public network €7 481.97 for registration of provision of a public telecommunications service **Frequency fees** €332.94 for each station licensing not needing coordination €999.9 for each station licensing requiring coordination
FIN	**Frequency fees** per station: €148 in case of frequency coordination	**Frequency fees** per station: €60.5

Table 4 (cont'd)

S	**Administrative fees** : 0 **Frequency fees:** 0	**Frequency fees** per station: €573.16
UK[23]	**Administrative fees**: €8 996.12 for the licence	**Administrative fees**: €4 498.1 (renewable licence fee) **Frequency fees** per station (hub stations): €1 499.35 up to 100 kHz €7 496.77 between 100 kHz and 2 MHz (peripheral stations): €2 298.71 up to 20 stations; €8 996.12 from 21 to 100 stations

[21] The minimum percentage of 0.10% is applied for turnovers of up to €12 394 000; the highest percentage of 0.25%is applied to turnovers of greater than €123 940 000.

[22] Monthly fees per station vary as follows: €14 if < 1 Watt; €35 if 1-6 Watt; €50 if 6-30 Watt; €109 if 30-150 Watt; €327 if 150-1000 Watt; €654 if > 1000 Watt.

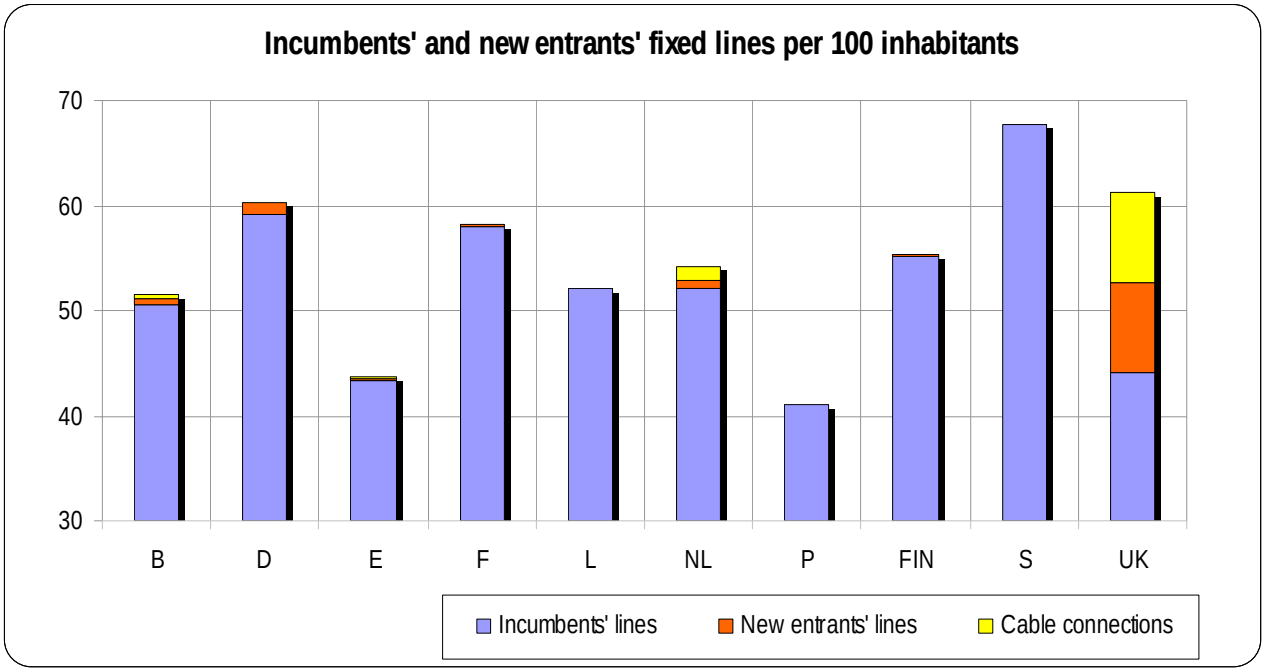
[23] In addition to those authorisations under the Telecommunications Act 1984, The Radiocommunications Agency charges fees for frequencies and terminals.

LOCAL ACCESS

NEW ENTRANTS' FIXED LINES AND WIRELESS LOCAL LOOP (WLL) LICENCES

This section contains market data which give an idea of the degree of competition in the local access market. These data include the number of wireless local loop licences granted to new entrants and estimates of the number of fixed lines installed by new entrants and the number of cable connections used to provide voice telephony services.

Chart 1

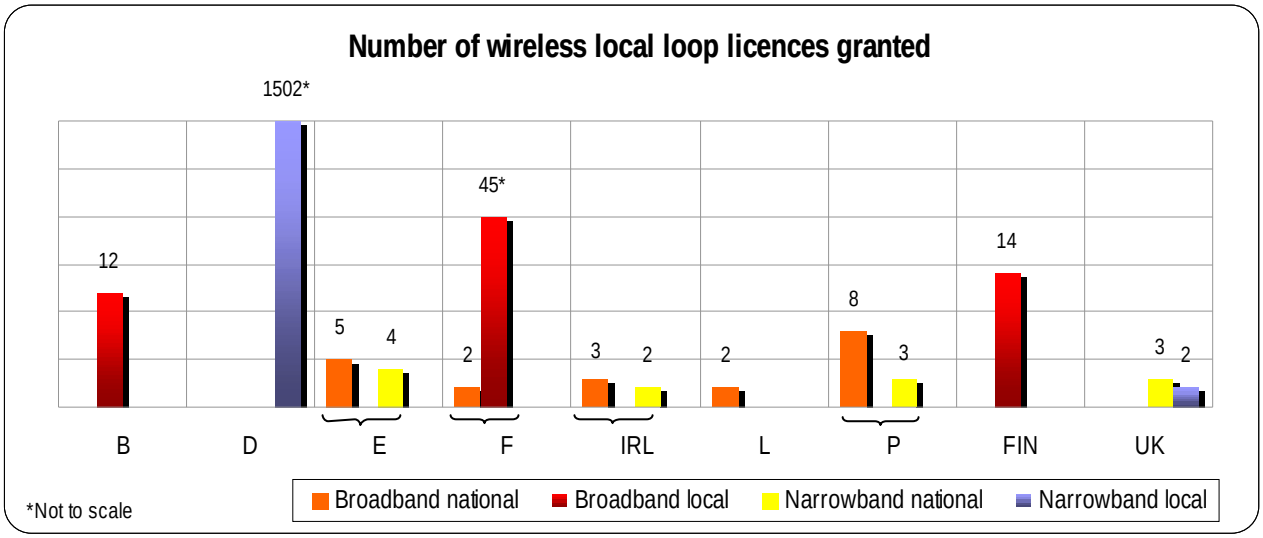


Estimates of the proportion of fixed lines installed by new entrants and the number of cable connections used to provide voice telephony services.

Figures on new entrants' fixed lines are not available for P. Figures on the number of cable connections used to provide voice telephony services are not available for A. EL (whose market is not yet fully liberalised) is not included.

The data on fixed lines refer to the situation in August for D, F, L, NL, S, in April for P, UK, and in January 2000 for the remaining countries.

Chart 2

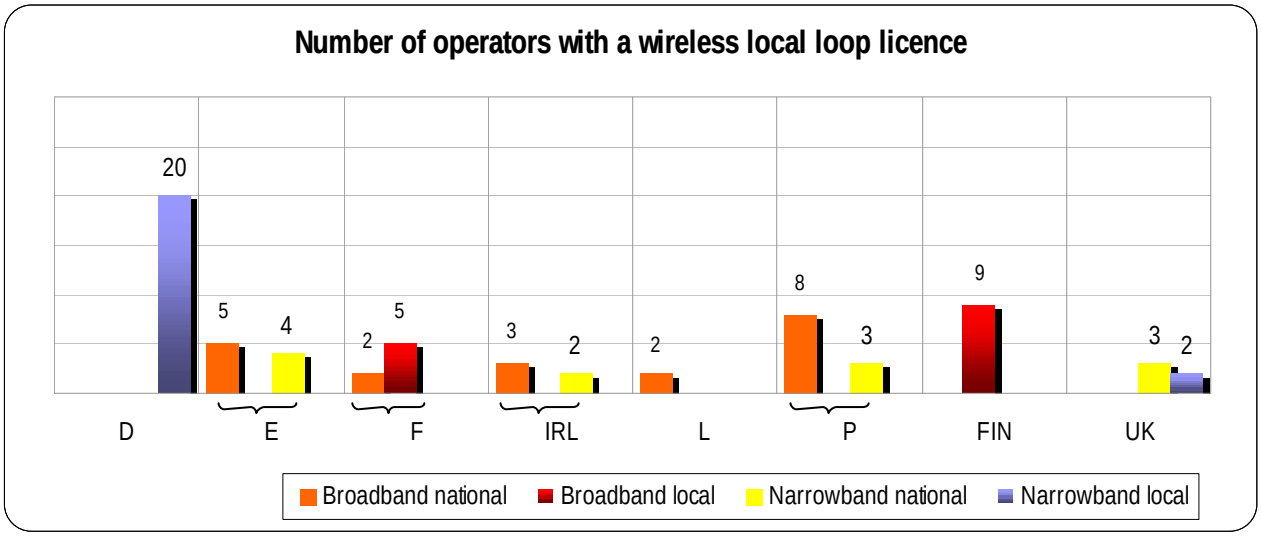


Number of broadband and narrowband wireless local loop licences granted. Local and national licences are distinguished.

No comparative conclusions should be drawn from this chart, due to the different nature of the licences concerned.

In Sweden, three broadband national licences have been revoked for procedural reasons.

Chart 3



Number of operators with broadband and narrowband local loop licences. Local and national licences are distinguished.

No comparative conclusions should be drawn from this chart, due to the different nature of the licences concerned.

1. MOBILE MARKET DATA

The following charts estimate for each Member State the number of mobile subscribers and the penetration rate at August 2000, and the growth in the penetration rate since August 1999.

Figures are taken from FT Mobile Communications (July 2000) and include both analogue and digital (second-generation) mobile subscribers.

EU average is a simple, rather than a weighted average.

Chart 1

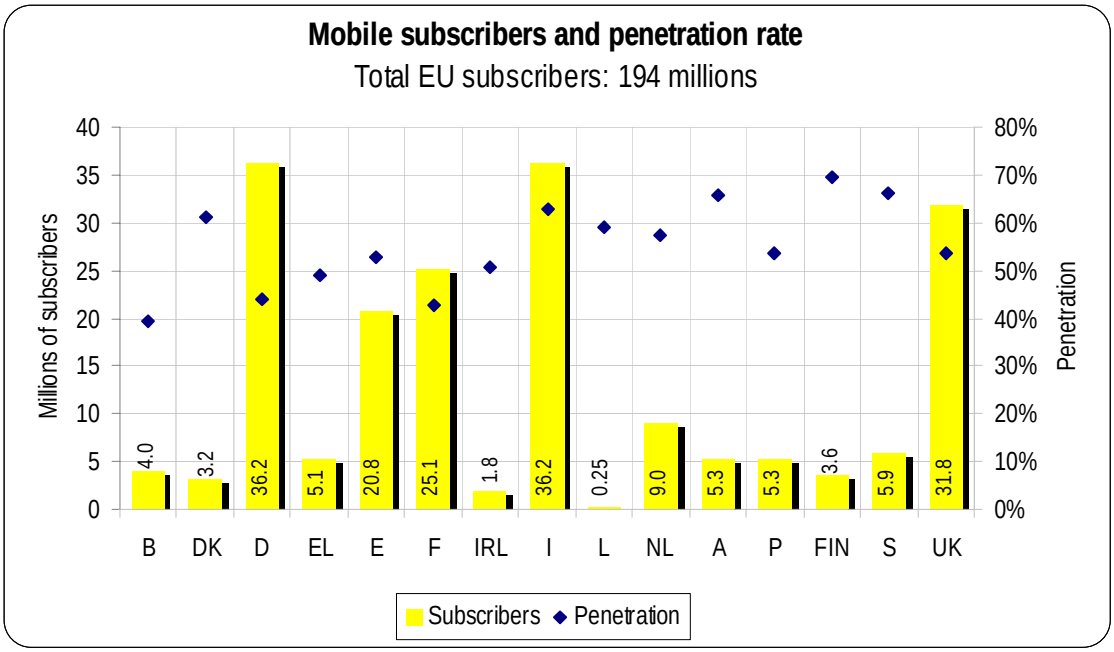
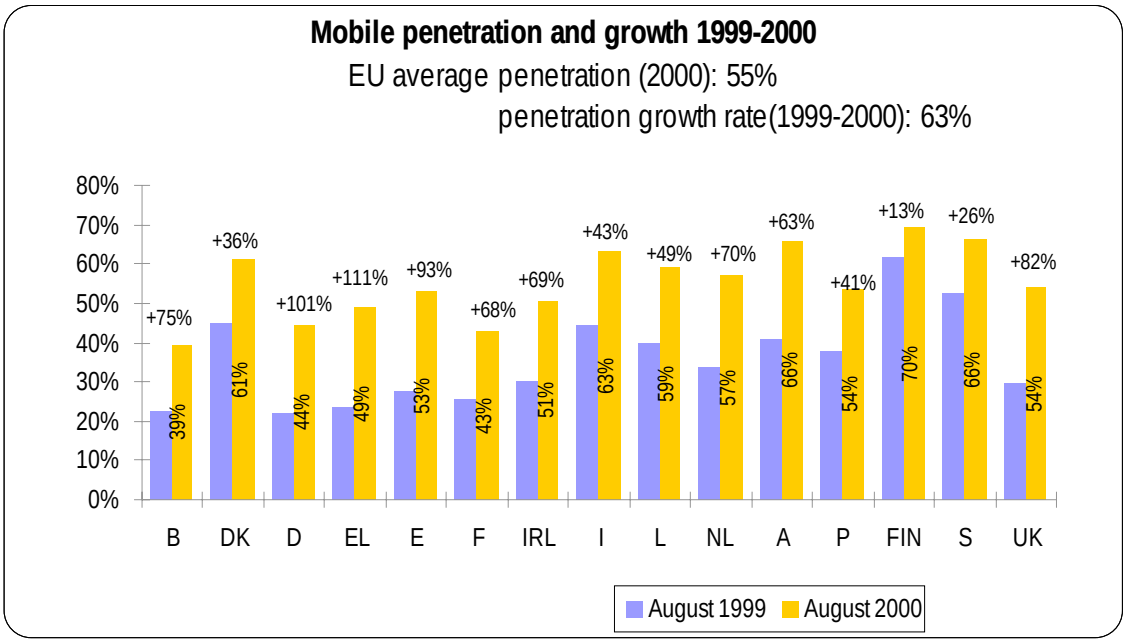


Chart 2



2. MOBILE OPERATORS

This section shows the number of mobile licences granted in each Member State for the provision of analogue, GSM 900, DCS 1800 and UMTS services.

The data on the number of licensed operators have been provided by the national regulatory authorities and indicate the position in August 2000.

Chart 3 shows the number of operators licensed to provide digital mobile services (second-generation). This indicates the real magnitude of the choice of operators for customers of digital mobile services, since very often operators have licences for both GSM 900 and DCS 1800. Mobile network operators have been identified as having only GSM 900 or only DCS 1800 frequencies, or both (in which case they have usually been granted a GSM 900 licence which has subsequently been extended to the DCS 1800 band).

Information on mobile service providers[1] has been included where available (without distinction between local and national coverage).

In Finland, 38 local telephone companies have been awarded licences to operate a local DCS 1800 service, but spectrum has been allocated to the two mobile operators, Radiolinja and Suomen 2 G, in which those companies participate. In the following charts we have only included Radiolinja and Suomen 2 G as national operators.

In the Netherlands, one "national" operator has been assigned several small local lots of DCS 1800 frequencies, which together allow coverage of the whole country.

The figure for France does not include 2 local analogue and 2 local GSM 900 licences granted to France Caraïbe Mobiles and Saint Martin Mobiles (both subsidiaries of France Telecom) for the overseas departments[2].

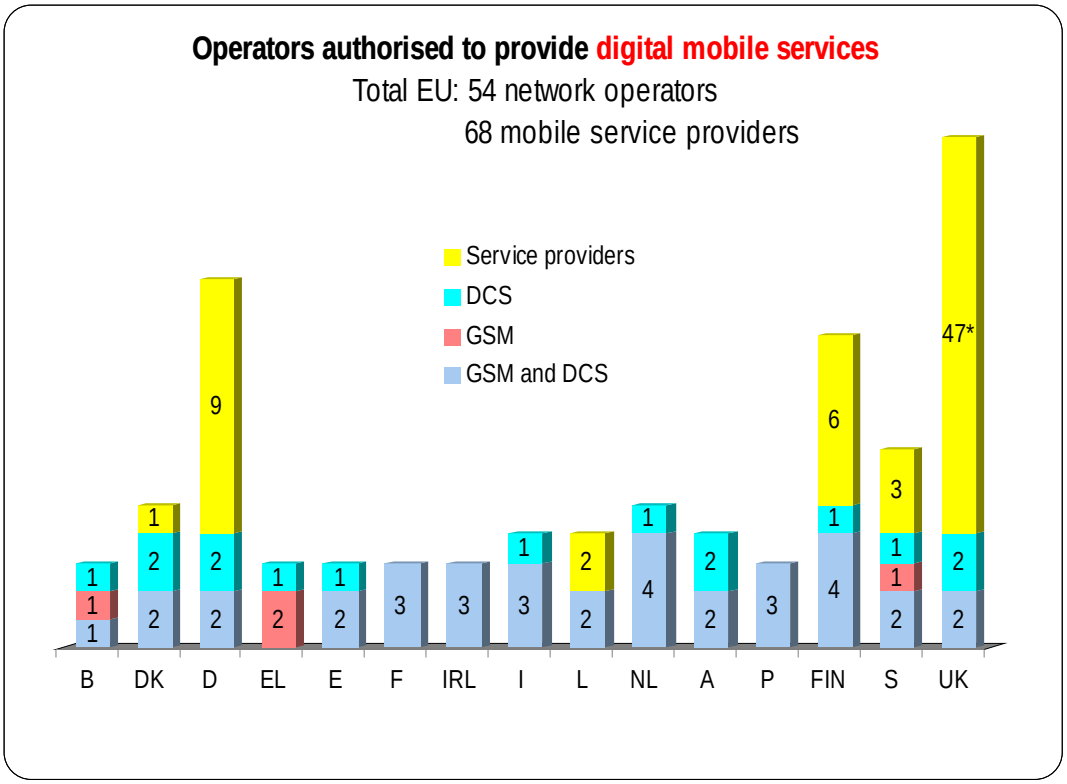
In the UK, the number of DCS operators is dependent on the expected sale of Orange by Vodafone.

[1] Mobile service providers are defined as entities authorised to offer mobile service under their own brand name (dealing with marketing, billing, etc.), using a third party's mobile network.

[2] Département de la Réunion, Antilles Françaises, Guyane; Île de Saint Martin et Saint Barthélémy)

All the operators are active on the market apart from one digital operator in Finland and one in Ireland (both GSM 900 and DCS 1800 frequencies).

Chart 3

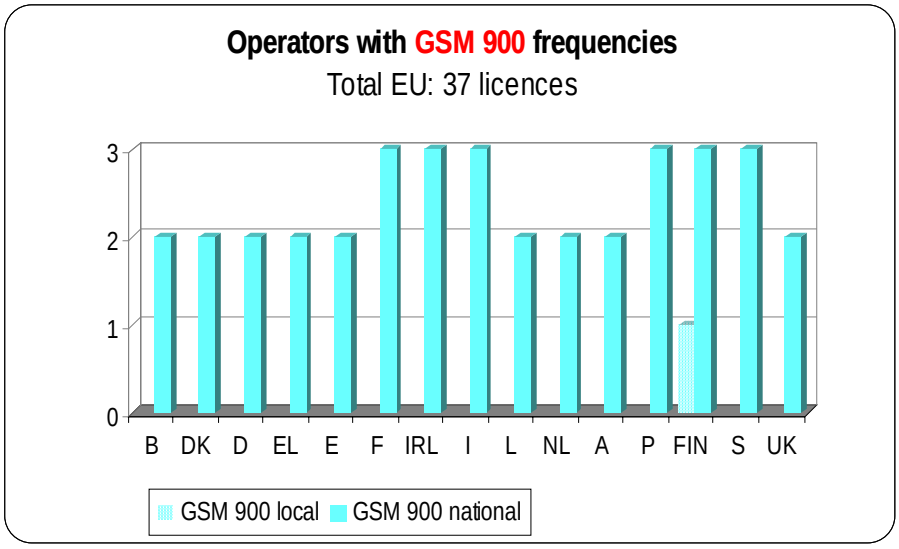


* Figure for UK is not to scale.

The figure for Finland in Chart 3 includes one local GSM network operator and one local mobile service provider.

Figures for mobile service providers do not distinguish between local and national operators.

Chart 4



In the following chart, the 2 local DCS 1800 frequencies in Austria have been granted as an extension of 2 national GSM licences.

Chart 5

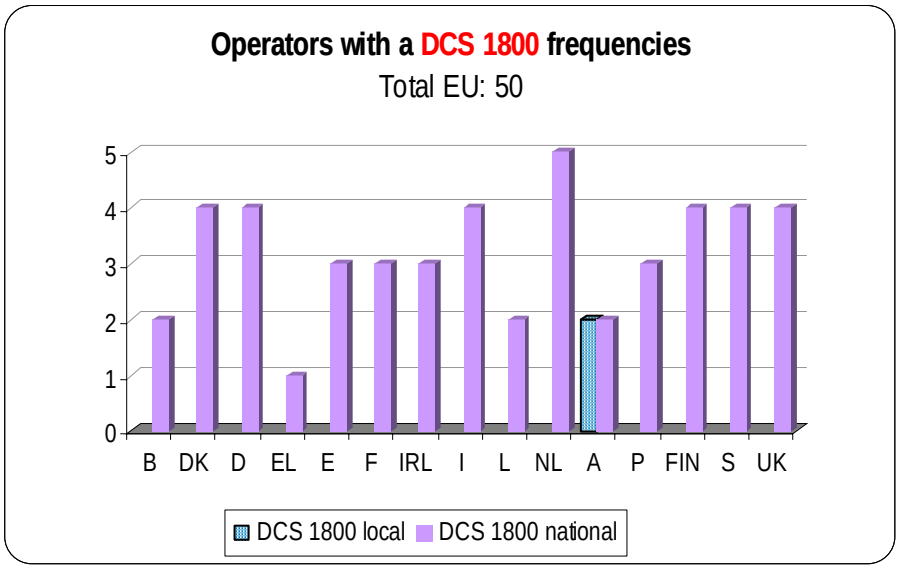


Chart 6 shows the number of analogue licences in each Member State and the date on which the phasing-out of these networks is expected to be completed.

In Sweden and Finland, the leading operators have also been granted an NMT 450 analogue licence. The phasing-out of this network in Sweden is expected to be completed by December 2004; no date has been set yet for the phasing-out of this network in Finland.

Apart from in the UK, only the subsidiary of the incumbent fixed network operator has an analogue licence.

Chart 6

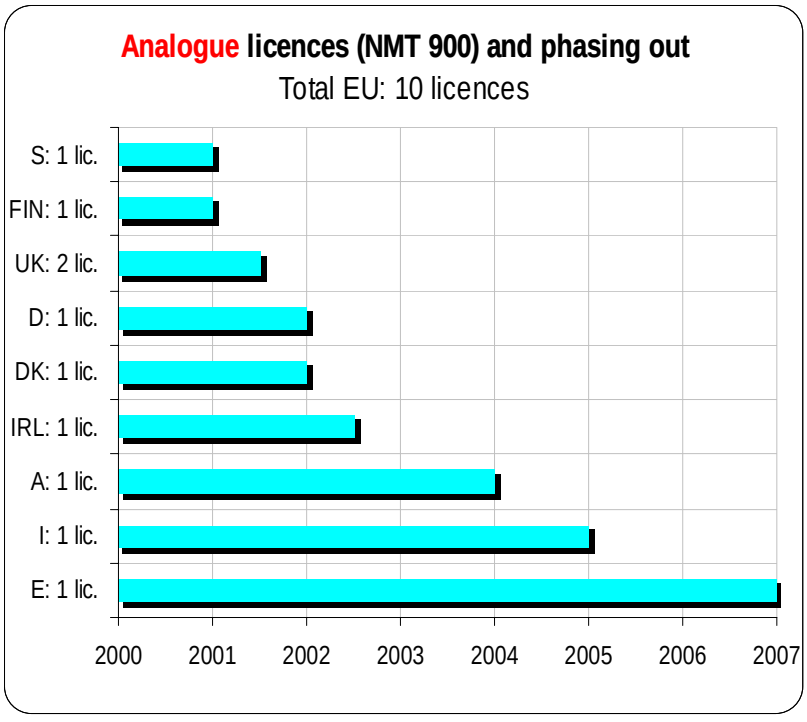
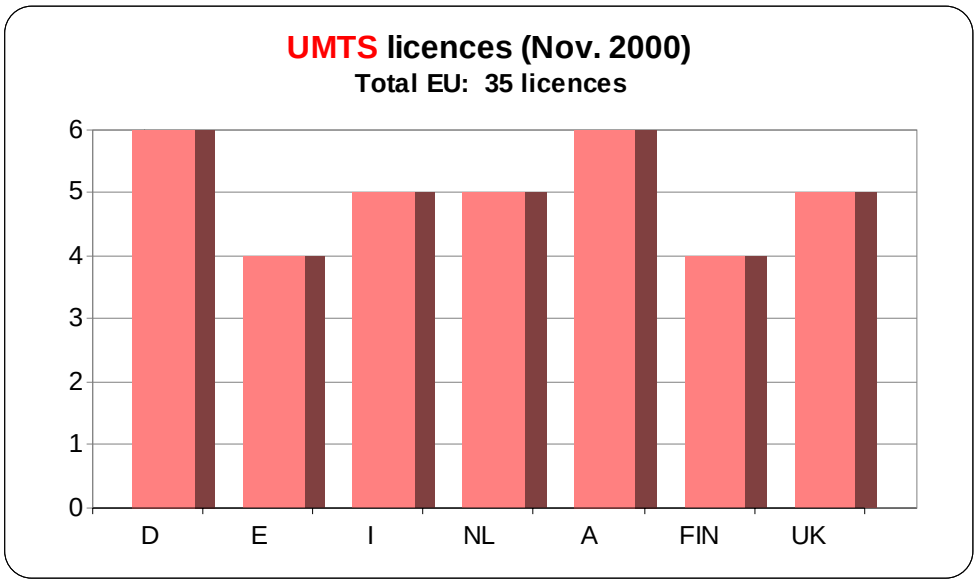


Chart 7



In Italy and Austria the auctions were completed by mid November, but the licensing process is still under way.

The figure for Finland does not include 2 local UMTS licences.

2.1 OPERATORS' MARKET SHARES

The following charts show the market shares, in terms of subscribers, of the main competitors in the mobile market.

Since in 9 countries the incumbent's subsidiary is still providing the analogue service on the basis of a de jure or de facto monopoly, the operators' market shares have been calculated on two different relevant markets: the overall mobile market (including analogue, DCS 1800 and GSM 900 subscribers) and the digital market only (DCS 1800 and GSM 900).

The data concerning shares of the mobile market are based on estimates of the number of mobile subscribers, taken from FT Mobile Communications, and refer to July 2000. They have been compiled on the same basis in each country, and are therefore comparable. However, different figures might be obtained if the underlying raw data were collected/estimated on a different basis (number of subscribers, pre-paid card, minutes of conversation, etc.) or if a different method of calculation were used.

Apart from in Greece and the United Kingdom, the leading operator is a subsidiary of the incumbent fixed network operator.

Chart 8

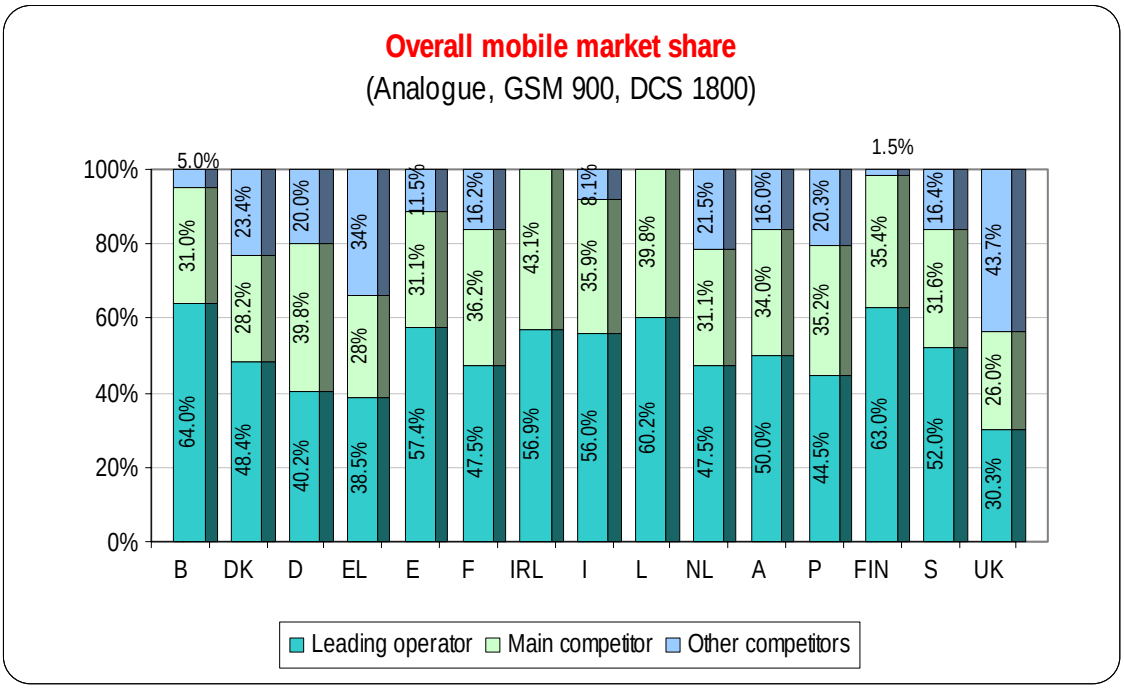


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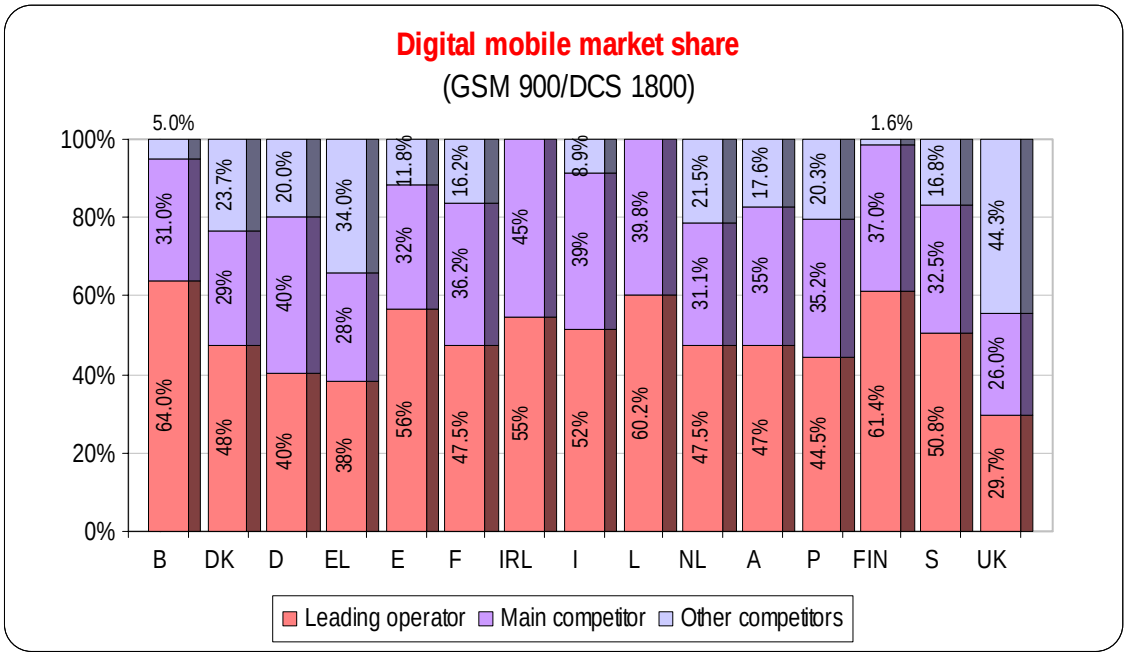
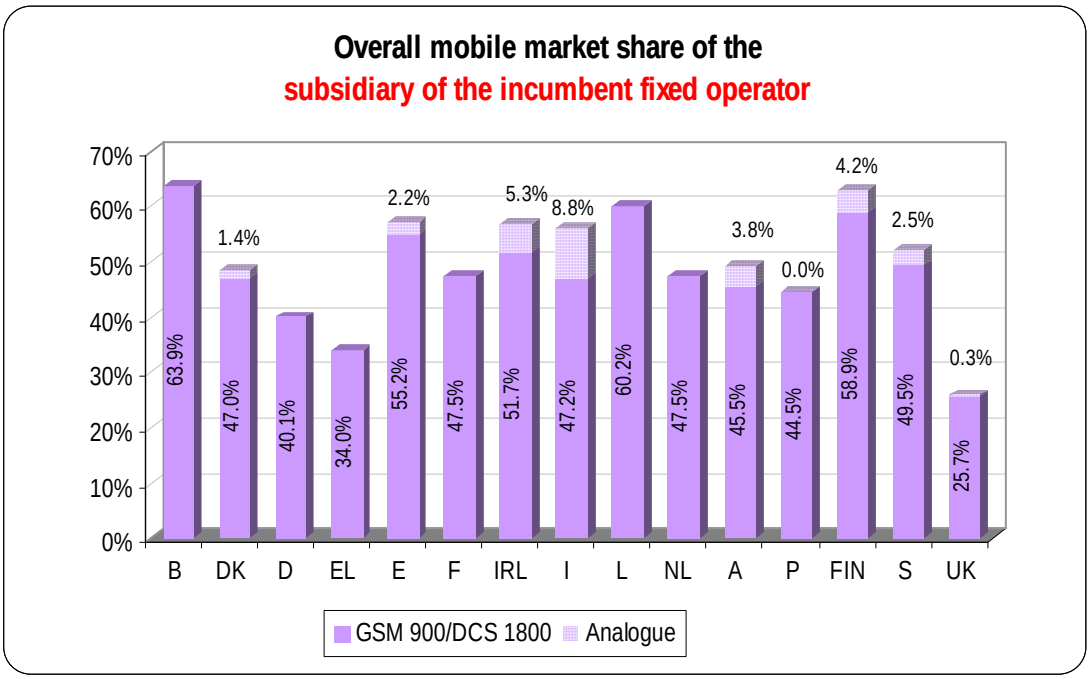
Chart 9



The following chart shows the share of the overall mobile market held by the mobile subsidiary of the incumbent fixed operator. Where the incumbent still operates the analogue service, the shares of the overall mobile market of their analogue and digital services are indicated separately.

Chart 10


Overall mobile market share of the
subsidiary of the incumbent fixed operator
70%
60%
50%
40%
30%
20%
10%
0%
63.9%
47.0%
1.4%
40.1%
34.0%
55.2%
2.2%
47.5%
51.7%
5.3%
47.2%
8.8%
60.2%
47.5%
45.5%
3.8%
44.5%
0.0%
58.9%
4.2%
49.5%
2.5%
25.7%
0.3%
B
DK
D
EL
E
F
IRL
I
L
NL
A
P
FIN
S
UK
GSM 900/DCS 1800
Analogue

3. FREQUENCY ALLOCATION TO MOBILE OPERATORS OF FIRST AND SECOND GENERATION

Table 1 provides information on the assignment of spectrum to operators of analogue, GSM 900 and DCS 1800 services in the 15 EU Member States. Analogue frequencies are not indicated if the phase-out of the service was completed by August 2000: this is the case for France Telecom (France), KPN Mobile (The Netherlands) and TMN (Portugal).

The various methods of assigning spectrum are identified as follows:

- **first come first served**: spectrum is assigned in order of application, until it is full. In order to contain demand, it is usual to apply rules ("need" criteria) on who may receive assignment, for what uses, and what bandwidth is appropriate for specific uses. The NRA may set a standard price calculated to reflect the market value of the frequencies assigned. This approach is used where spectrum is not scarce and there is no competition for licences. This category includes cases where a mobile licence is assigned to a subsidiary of the incumbent because the latter holds the concession for telecommunications services.
- **beauty contest**: licences are assigned to the "best qualified" among those applicants who meet the minimum criteria set by the NRA. Economic criteria are not taken into consideration (applicants do not bid a price). The NRA sets a standard price calculated to reflect the market value of the frequencies assigned.
- **beauty contest with economic criteria**: licences are assigned to those applicants who offer the best combination of money, plan, and qualifications.
- **auction**: licences are assigned to those applicants offering the most money.
- **other**: other definitions are used when the previous ones are not considered appropriate.

The date of assignment refers to the date of the first allocation of spectrum to the operators, although in some cases (e.g. in France, Italy and Sweden) frequencies have been released gradually.

In the case of Belgacom (Belgium), Entreprise des Postes et Télécommunications (Luxembourg) and all Swedish GSM operators, the duration of spectrum licences and operating licences does not correspond to the actual period of use of the assigned spectrum (the spectrum was already in use before formal licences were issued).

Table 1: Assignment of analogue, GSM 900 and DCS 1800 spectrum

.	Method of assignment	Spectrum assigned	Initial assignment	Duration of licence for:	
				Spectrum	Operations
BELGIUM					
Belgacom	First come first served[3]	2x12 MHz (GSM)	Apr. 95[3]	15 years	
	Extension of GSM licence	4.4 MHz (DCS)	May 99	Duration of GSM licence	
Mobistar	Beauty contest	2x12 MHz (GSM)[4]	Nov. 95	15 years	
KPN-Orange	Beauty contest	2x15 MHz (DCS)	Sep. 98	15 years	
DENMARK					
TeleDanmark	First come first served	2x 4.5 MHz (analogue, NMT) 2x5.8 MHz (analogue NMT)	Jan. 82, Dec. 95 (reissue) Jan. 87, Feb. 97 (reissue)	10 years 10 years	
	First come first served	2x8.8 MHz (GSM)	Nov. 1991	10 years	
	Beauty contest	2x14.4 MHz (DCS)	Mar. 1997	10 years	
Sonofon	Beauty contest	2x8.8 MHz (GSM)	Sep. 1991	10 years	
	Beauty contest	2x7.2 MHz (DCS)	Mar. 1997	10 years	
Telia	Beauty contest	2x14.4 MHz (DCS)	Mar. 1997	10 years	
Mobilix	Beauty contest	2x14.4 MHz (DCS)	Mar. 1997	10 years	
GERMANY					
DT Mobil	First come first served[5]	2x5.6 MHz (analogue)	1986	20 years	
	First come first served[5]	2x12.5 MHz (GSM)	Feb. 1990	20 years	
	Auction	2x5.0MHz (DCS)	Oct. 1999	10 years	
Mannesmann Mobilfunk	Beauty contest	2x12.5 MHz (GSM)	Feb. 1990	20 years	
	Auction	2x5.0 MHz (DCS)	Oct. 1999	10 years	
E-Plus Mobil	Beauty contest	2x22.5 MHz (DCS)	May 1993	19.5 years	
Viag Interkom	Beauty contest	2x22.5 MHz (DCS)	May 1997	19.5 years	
GREECE					
Panafon	Beauty contest	2x10 MHz (GSM)	Sep. 1992	20 years	
Telestet	Beauty contest	2x10 MHz (GSM)	Sep. 1992	20 years	
Cosmote	Direct allocation	2x25MHz (DCS)	Dec. 1995	25 years	

[3] Belgacom Mobile was assigned frequencies prior to January 1994 (date from which the operator started commercial operations). However, conventionally, the licence is considered to be valid from April 1995, i.e. when the Royal Decree of 7 March 1995, which opened the mobile sector to competition, entered into force. The frequency assignment was subject to the payment of the same concession fee as Mobistar.

[4] Mobistar is also entitled to request up to 2x15 MHz in the DCS 1800 frequency band.

[5] Under monopoly regime.

.	Method of assignment	Spectrum assigned	Initial assignment	Duration of licence for:	
				Spectrum	Operations
SPAIN					
Telefonica Movil	First come first served	2x16.6 MHz (analogue)	Dec. 1991	15 years[6]	
	First come first served	2x11.8 MHz (GSM)	Feb. 1995	15 years	
	Beauty contest	2x13.4 MHz (DCS)	Jul. 1998	25 years	
Airtel Movil	Beauty contest	2x11.8 MHz (GSM)	Dec. 1994	15 years	
	Beauty contest	2x13.4 MHz (DCS)	Jul. 1998	25 years	
Retevision Movil	Beauty contest	2x13.4 MHz (DCS)	Jul. 1998	25 years	
FRANCE					
France Telecom Mobiles	Extension of authorisation for analogue services[7]	Between 2x10.8 on average (GSM)	Mar. 1991	15 years	
	Extension of authorisation for analogue services	Between 2x13.2 on average (DCS)	Nov. 1998	Duration of GSM licence	
SFR	Extension of authorisation for analogue services[8]	Between 2x10.8 on average (GSM)	Mar. 1991	15 years	
	Extension of authorisation for analogue services	Between 2x13.2 on average (DCS)	Nov. 1998	Duration of GSM licence	
Bouygues Telecom	Beauty contest	Between 2x3.1 on average (GSM)	Nov. 1998[9]	15 years	
	Beauty contest	Between 2x23.2 on average (DCS)	Dec. 1994	15 years	
IRELAND					
Eircell	First come first served	2x10 MHz (analogue)	Dec. 1985	Renewable annually	15 years
	First come first served	2x7.5 MHz (GSM)	Jul. 1993	Renewable annually	15 years
	Operator had to justify requirement	2x14.4 MHz (DCS)	Jan. 2000	Renewable annually	15 years
Esat Digifone	Beauty contest	2x7.5 MHz (GSM)	May 96	Renewable annually	15 years
	Operator had to justify requirement	2x14.4 MHz (DCS)	Jan. 2000	Renewable annually	15 years
Meteor	Beauty contest	2x4.8 MHz (GSM)	Jun. 2000	Renewable annually	15 years
	Beauty contest	2x14.4 MHz (DCS)+	Jun. 2000	Renewable annually	15 years

[6] From the assignment of spectrum.

[7] The provision of analogues services was mandatory for FT's. The authorisation to provide analogue services is in the process of being abolished and frequencies have already been given back.

[8] The authorisation to the provision of analogue services had been granted by means of a beauty contest procedure. As for FT, it is in the process of being abolished and the operator has given back the frequencies.

[9] Although the assignment of the licence dates back to Dec. 1994.

.	Method of assignment	Spectrum assigned	Initial assignment	Duration of licence for:	
				Spectrum	Operations
ITALY					
TIM	First come first served	2x11.8 MHz (analogue)	Jul. 1990	15 years	
	First come first served	2x8.2 MHz +2x2.3MHz in large cities (GSM)	1994	15 years	
	Extension of GSM licence	2x4.8 MHz (DCS)	Jul. 1999	Same as GSM licence	
OPI	Beauty contest	2x8.2 MHz + 2x2MHz in large cities (GSM)	1994	15 years	
	Extension of GSM licence	2x4.8 MHz (DCS)	Jul. 1999	Same as GSM licence	
WIND	Beauty contest	2x4.8 MHz outside large cities (GSM)	Jul. 1999	15 years	
		2x9.8 MHz (DCS)	Jul. 1998	15 years	
Blue	Beauty contest	2x9.8 (DCS)	Aug. 1999	15 years	
LUXEMBOURG					
Entreprise P. et T.	Beauty contest	2x11.6 MHz (GSM)	Jun. 1993	15 years[10]	
	Beauty contest	2x9.8 MHz (DCS)	May 1998	15 years	
Millicom	Beauty contest	2x11.6 MHz (GSM)	May 1998	15 years	
	Beauty contest	2x9.8 MHz (DCS)	May 1998	15 years	
NETHERLANDS					
KPN-Mobile B.V.	First come first served[5]	2 x 16 MHz (GSM)	Sep. 1994	15.6 years	15 years
	Auction	2x16.2 MHz(DCS)	Feb. 1998	15 years	13 years
Libertel	Beauty contest	2x7.4 MHz (GSM)	Apr. 1995	15 years	15 years
	Auction	2x9 MHz (DCS)	Feb. 1998	15 years	15 years
Dutchtone	Auction	2x14.8 MHz (DCS)	Feb. 1998	15 years	15 years
	Auction	2x5MHz (E-GSM)	Feb. 1998	Same as DCS licence	
Telfort	Auction	2x16.8 MHz (DCS)	Feb. 1998	15 years	15 years
	Auction	2x6.2 MHz (E-GSM)	Feb. 1998	Same as DCS licence	
Ben Netherlands	Auction	2x15.6 MHz (DCS)	Feb. 1998	15 years	15 years
AUSTRIA					
Mobilkom Austria	First come first served[5]	2x11 MHz (analogue) but 2x8 since 1.01.2000	Nov. 1990	15 years[11]	
	First come first served[5]	2x8 MHz (GSM)	Jan. 1994	20 years	
	Extension of GSM licence	2x5 MHz (DCS) but only locally	Aug. 1999	Duration of GSM licence	

[10] Officially the licence has a duration of 15 years beginning in 1998, but use of the frequencies had started earlier.
[11] According to the national frequency plan usage ends in 2005.

.	Method of assignment	Spectrum assigned	Initial assignment	Duration of licence for:	
				Spectrum	Operations
Max.Mobil.	Beauty contest with economic criteria	2x8 MHz (GSM)	Jan. 1996	20 years	
	Extension of GSM licence	2x5 MHz (DCS) but only locally	Aug. 1999	Duration of GSM licence	
Connect Austria	Auction	2x16.8 MHz (DCS)	Aug. 1997	20 years	
Tele.ring	Auction	2x14.8 MHz (DCS)	May 1999	20 years	
PORTUGAL					
TMN[12]	Direct allocation[13]	2x8 MHz (GSM)	Mar. 1992	15 years	
	Extension of GSM licence	2x6 MHz (DCS)	Apr. 1998	Duration of GSM licence	
Telecel	Beauty contest[13]	2x8 MHz (GSM)	Oct. 1991	15 years	
	Extension of GSM licence	2x6 MHz (DCS)	Apr. 1998	Duration of GSM licence	
Optimus	Beauty contest[13]	2x7.8 MHz (GSM)	Nov. 1997	15 years	
	Contextual to GSM	2x6 MHz (DCS)	Nov. 1997	Duration of GSM licence	
FINLAND					
Suomen 2 G Oy	First come first served	2x2.1 MHz (GSM) from Jan. 2001: 2x8.6 MHz (GSM + E-GSM)	Aug. 2000	Max 20 years	20 years
Finnet Group/ Suomen 2 G Oy	First come first served	2x7.2 MHz (DCS)	Jun. 1996[14]	Max 20 years	20 years[15]
Oy Radiolinja	First come first served	2x9 MHz in the Helsinki area + 2x8.4 MHz in the rest of the country (GSM)	Feb. 1996	Max 20 years	20 years
	First come first served	2x7.2 MHz (DCS)	Jun. 1996	Max 20 years	20 years
Sonera OyJ	First come first served	2x4.5 MHz (NTM 450) 2x2.1 MHz (NTM 900)	NTM 450: 1981 NTM 900: 1986	Max 20 years	20 years
	First come first served	2x12.4 MHz in the Helsinki area + 2x11.6 MHz in the rest of the country (GSM)	Feb. 1990	Max 20 years	20 years
	First come first served	2x7.2 MHz (DCS)	Jun. 1996	Max 20 years	20 years
Telia Mobile Finland	First come first served	2x7.2 MHz (DCS)	Jun. 1996	Max 20 years	20 years

[12] Same licence for GSM and DCS services.

[13] However, in 1992, following the award of a GSM licence to the new operator Telecel, TMN had to present a formal request and to fulfil minimum conditions.

[14] This date refers to the granting of the spectrum licence to the Finnet Group. However, in August 2000 a spectrum licence for DCS 1800 was given to Suomen 2 G Oy, a new operator comprising almost all local companies of the Finnet Group. The new licence has replaced the one granted to the Finnet Group.

[15] 36 local licences to operate the service were granted to as many operators belonging to the Finnet Group. All the licences were granted between November 1997 and October 1999.

.	Method of assignment	Spectrum assigned	Initial assignment	Duration of licence for:	
				Spectrum	Operations
Alands Mobiltelefon	First come first served	2x8.2 MHz in Åland (GSM)	Feb. 1993	Max 20 years	20 years
SWEDEN					
Telia	First come first served	4.5 MHz (NTM 450) 2x1.9 MHz (NTM 450)	1981 1986	NMT450: ends Dec. 2004 NMT900: ends Dec. 2000	
	First come first served	2x7.2 MHz (GSM)	1992	10 years[16]	
	Beauty contest	2x15 MHz (DCS)	Feb. 1996	10 years	
Europolitan	Beauty contest	2x7.2 MHz (GSM)	1992	10 years[16]	
	Beauty contest	2x8.4 MHz (DCS)	Feb. 1996	10 years	
Tele2	Beauty contest	2x7.2 MHz (GSM)	1992	10 years[16]	
Netcom	Beauty contest	2x8.4 MHz (DCS)	Feb. 1996	10 years	
UNITED KINGDOM					
One2One	Beauty contest	2x30 MHz (DCS)	Mar. 1993	Renewable annually	25 years[17]
Orange Personal Comm.	Beauty contest	2x30 MHz (DCS)	Feb. 1994	Renewable annually	25 years[17]
Vodafone	Beauty contest	2x8.2 MHz (Analogue)	Jul. 1992	Renewable annually	25 years[17]
	Beauty contest	2x12.2 MHz (GSM)	Jul. 1992	Renewable annually	Same licence as analogue
	Extension of licence[18]	2x5.8 MHz (DCS)	Jul. 1996	Renewable annually	Same licence as analogue
BT Cellnet	Beauty contest	2x8.1 MHz (Analogue)	Jul. 1992	Renewable annually	25 years[17]
	Beauty contest	2x12.2 MHz (GSM)	Jul. 1992	Renewable annually	Same licence as analogue
	Extension of licence[18]	2x5.8 MHz (DCS)	Jul. 1996	Renewable annually	Same licence as analogue

4. FEES AND CHARGES PAID BY MOBILE OPERATORS OF FIRST AND SECOND GENERATION

The following chart shows the amount of fees paid by mobile operators in 1999 per 2x1 MHz expressed as euro per 1 000 inhabitants.

The figures include the annual fee/charges actually paid and part of the initial (one-off) fee and charges paid by the operator, which are spread over the duration of the licence. In order to make the figures comparable, the amount obtained has been divided by the number of MHz assigned to each operator and the population of the country concerned.

[16] A licence was granted only in 1995, although operations started in 1992.
[17] Subject to 10 years' notice, but notice cannot be given prior to 15 years of holding a licence.
[18] Following public consultation.

For Chart 11: Fees/charges paid by mobile operators in 1999 per 2x1 MHz (€ per 1000 inhabitants), please return to the index page "Sixth Report on the Implementation of the Telecommunications Regulatory Package" and click on the hyperlink: "Chart 11"

Notes to the Chart “Fees/charges paid by mobile operators in 1999 per 2x1 MHz”:

i. This chart is based on the information concerning the spectrum assigned and the duration of the spectrum licence set out in the table “Assignment of analogue, GSM 900 and DCS 1800 spectrum". Where the spectrum licence is described as renewable, the longest possible duration has been taken into account.

ii. Where spectrum is not assigned nationwide, the frequencies assigned to an operator have been weighted by the percentage of population living in the area covered by those frequencies.

iii. Unlike the information set out in the previous table, the chart only takes account of frequencies for digital services (i.e. it excludes frequencies for analogue services), except in the case of Eircel (Ireland), TIM (Italy) and Telefónica Móviles España (Spain), for which it is not possible to separate the fees for the two services.

iv. Meteor (Ireland), Suomen 2G Oy (Finland) and Tele2 (Sweden) are not included, because they did not have any frequencies in 1999. Likewise, frequencies assigned during 2000 have not been taken into account in the case of Eircell and Esat Digifone (Ireland) and in the case of French operators.

v. For the purposes of this chart, all frequencies are assumed to have been assigned to the operators on the date of the first assignment of spectrum, which is not necessarily the case for all operators.

vi. In the case of Belgacom (Belgium), Entreprise des Postes et Télécommunications (Luxembourg) and all Swedish GSM operators, the duration of the licences, rather than the actual use of the assigned spectrum, has been considered.

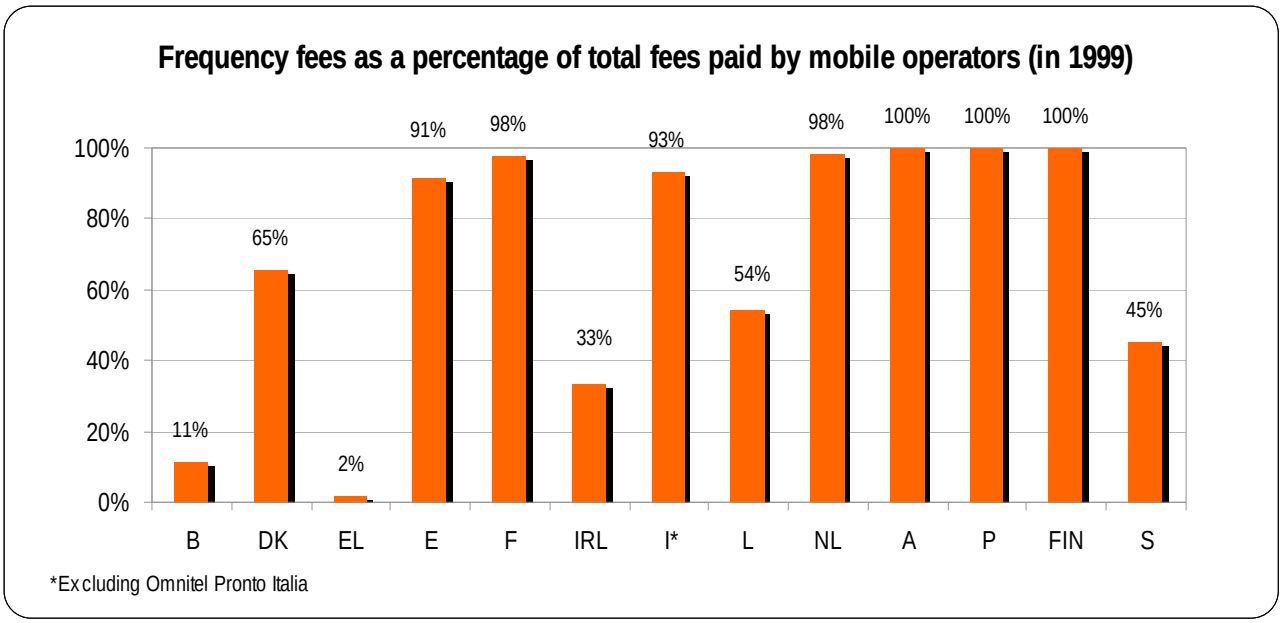
vii. In some countries the above fees also cover the cost of numbering resources (which is explicitly excluded in The Netherlands and Denmark).

viii. The fees paid by German operators are not included, as they have not yet been calculated by the regulator (as at 15 September 2000).

ix. The fees paid by UK operators refer to frequency fees only and do not include the annual licence fees paid under the Telecommunications Act, the amount of which is considered confidential. The fees paid by Swedish operators are not included because this information was not provided.

x. The fees paid by Italian operators include only part of the refarming costs for the liberation of DCS frequencies

Chart 12



Nature of fees and charges paid by 2G[19] mobile operators in 1999.

The classification of these fees varies from country to country, ranging from administrative fees (intended to cover the costs of the licensing procedure only), to licence fees (rights or royalties), frequency fees and charges to cover the cost of spectrum refarming. The chart shows frequency and frequency-related fees/charges (as opposed to administrative and other licence fees) as a percentage of the total fees/charges paid in 1999.

UK operators are excluded from this chart because information on the total amount of fees paid could not be provided. Omnitel Pronto Italia is excluded from the estimates concerning the Italian operators because it not possible to ascertain which of the fees/charges paid relate to frequencies.

[19] In a few cases, analogue frequencies might also be covered. Please refer to the notes to the Chart "Fees/charges paid by mobile operators in 1999 per 2x1 MHz".

5. FREQUENCY ALLOCATION AND FEES/CHARGES PAID BY MOBILE OPERATORS OF THIRD GENERATION

Table 2: Assignment of 3G spectrum (as of 1 September 2000)

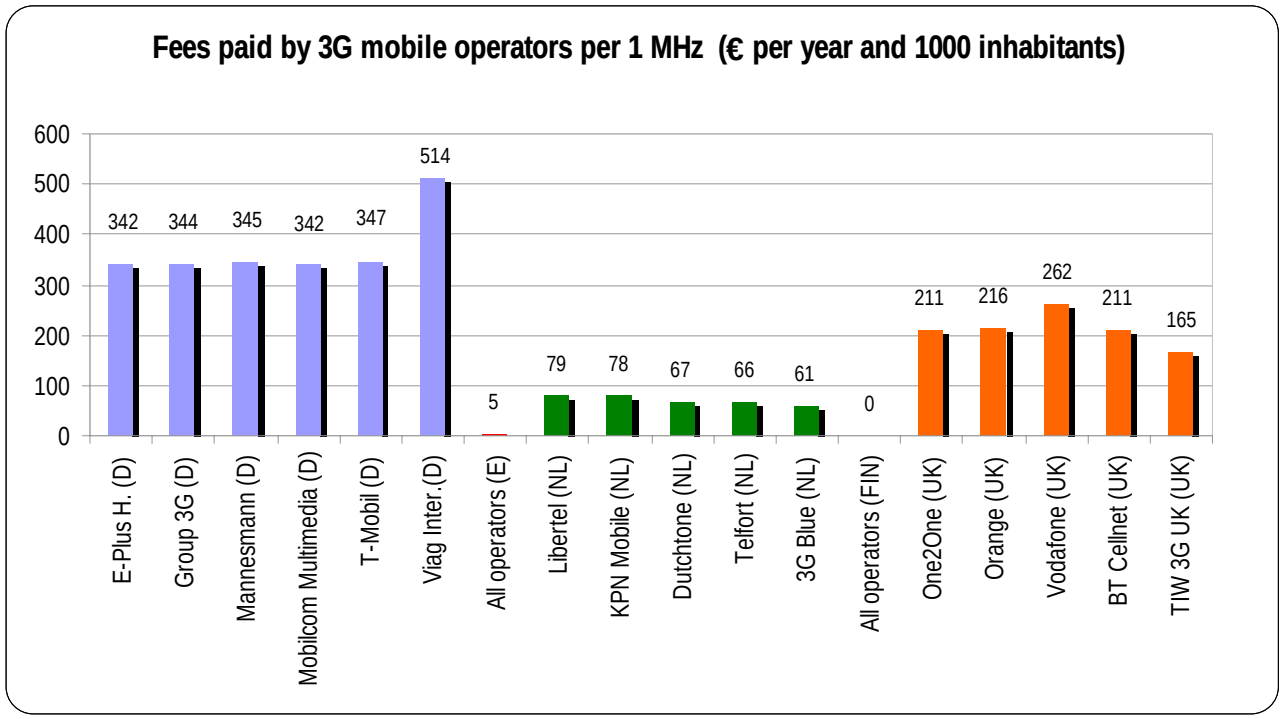
Date	Method	Duration of licence[20]	Licensees	Spectrum assigned	One-off spectrum fees (€)
GERMANY					
Aug. 2000	Auction	20 years	E-Plus Hutchinson	2x5+5 MHz	8 432 000 000
			Group 3G	2x5+5 MHz	8 459 000 000
			Mannesmann Mobil.	2x5+5 MHz	8 485 000 000
			Mobilcom Multimedia	2x5+5 MHz	8 431 000 000
			T-Mobil	2x5+5 MHz	8 535 000 000
			Viag Interkom	2x5 MHz	8 445 000 000
SPAIN					
Mar. 2000	Beauty contest	20 years	Telefonica Movil	2 x15+5 MHz per operator	131 321 145 per operator
			Airtel Movil		
			Retevision Movil		
			Xfera Movil		
THE NETHERLANDS					
Jul. 2000	Auction	16.5 years	Libertel	2 x15+ 5 MHz (A)	713 800 000
			KPN Mobile	2 x15+ 5 MHz (B)	711 070 000
			Dutchtone	2x10+ 5 MHz (C)	435 630 000
			Telfort	2x10+ 5 MHz (D)	430 000 000
			3G Blue	2x10+5 MHz (E)	394 970 000
FINLAND					
Jun. 2000[21]	Beauty contest	20 years	Oy Radiolinja	2x15+5 MHz per each operator	0[22]
			Sonera OyJ		
			Suomen Kolmege Oy		
			Telia Mobile Finland		
Not yet assigned	Beauty contest	As above	Tele 1 Europe	2x15+5 MHz (only Åland province)	0[22]
			Ålands Mobiltelefon		

[20] The duration is intended from the date of granting of spectrum unless specified.
[21] However, the national and local licences were granted respectively in March and September 1999.
[22] Finnish operators did not pay any fee for the initial assignment of spectrum. Annual frequency fees according to the general regulation will apply when commercial operations start.

Date	Method	Duration of licence[23]	Licensees	Spectrum assigned	One-off spectrum fees (€)
UNITED KINGDOM					
May 2000	Auction	21 years	TIW 3G UK	2x15+5 MHz (A)	7 185 300 000
			Vodafone	2x15 MHz (B)	9 773 300 000
			BT Cellnet	2x10+5 MHz (C)	6 560 700 000
			One2One	2x10+5 MHz (D)	6 560 700 000
			Orange	2x10+5 MHz (E)	6 710 500 000

Table 2 summarises the situation concerning the assignment of spectrum for the provision of third-generation (3G) mobile services in the EU on 1 September 2000. The last column shows the charges that operators had to pay for the initial assignment of spectrum. Any additional fees or annual charges for spectrum, numbers, etc. are not included.

Chart 13



The chart shows the amount of fees paid for the initial assignment of spectrum divided by the number of MHz assigned to each operator, the duration of the spectrum licence and the population of the country that granted the licence.

Note that, unlike the previous chart on fees and charges paid by 2G operators, this chart shows fees per MHz of spectrum (paired or unpaired).

[23] The duration is intended from the date of granting of spectrum unless specified.

6. NATIONAL DIGITAL MOBILE TARIFFS

This section analyses the tariffs for national mobile services.

The figures are intended to provide an estimate of the average monthly expenditure on (national[24]) digital[25] mobile phone calls of two "standard" consumption profiles: personal and business. Users are assumed to use a post-paid tariff plan available from the incumbent fixed network operator's mobile subsidiary[26]. Lower prices may be charged by other mobile operators: the figures are therefore purely indicative, and do not necessarily reflect the cheapest solution available.

For each operator, the tariff package considered most appropriate for each of the two consumption profiles has been selected, based on an analysis of the range of packages offered[27].

The analysis is provided by Teligen Foundation and is based on a basket of digital mobile calls (defined on an annual basis).

The fixed (i.e. non-recurring) charges include the annual line rental charge plus the charge for activation. Fixed charges for personal profile users include VAT, while for business profile VAT is excluded.

The mobile usage charges include national and international[28] mobile calls. The national calls comprise calls to local fixed-line phones (70%), calls to distant fixed-line phones (20%) and calls to mobile phones in the same network (10%). The personal profile comprises 200 national calls and 2 international calls, and is weighted towards afternoon and evening. The business profile comprises 1 200 national calls and 60 international calls, and is heavily weighted towards business hours. Call duration is three minutes for all calls. Call charges reflect the total charge for each call, including call set-up and minimum charges, as defined in the tariff. The international portion of the baskets follows the basic structure of the international fixed baskets for business and residential users (see tariffs section), the only difference being the call duration (which is always three minutes for the mobile basket).

The mobile subsidiaries of the incumbent fixed operators in Belgium, Ireland, Sweden and the United Kingdom include an amount of free calls or minutes, or other call-related allowances, in the package price; the value of this allowance is deducted from the usage charges.

The basket does not take account of the price of the handset, or handset subsidies. The low fixed charges in Finland and Italy are linked to the fact that the customer pays only for network access, and must buy a handset separately. The fixed charges reflect the minimal cost of connecting a customer to the network. The high rentals charged by some operators are in most cases due to a policy of subsidising disadvantaged users.

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[24] In the sense that it does not include roaming.

[25] Second-generation (GSM 900 and DCS 1800).

[26] Belgacom Mobile in Belgium, Tele Mobile in Denmark, T-Mobil in Germany, CosmOTE in Greece, MoviStar in Spain, France Telecom Mobile in France, EirCell in Ireland, Telecom Italia Mobile in Italy, P&T Mobile in Luxembourg, KPN Mobile in the Netherlands, MobilKom in Austria, TNM in Portugal, Sonera in Finland, Telia in Sweden, BT Cellnet in the United Kingdom.

[27] For the business profile the following packages have been considered: ProxiPro and AnyTime300 for Belgacom Mobile (B), Erherv Plus for Tele Mobile (D), Pro Tel-D1 for T-Mobil (D), Basic Program 2 for CosmOTE (EL), Personal for MoviStar (E), Loft Forfait 5H for France Telecom Mobile (F), Eirtime 250 for EirCell (IRL), Menu Business for Telecom Italia Mobile (I), Business for P&T Mobile (L), Flexible Premium for KPN Mobile (NL), A1 Geschäft for MobilKom (A), Normal for TNM (P), Business for Sonera (FIN), Volym for Telia (S), Net400 for BT Cellnet (UK).

For the personal profile the following packages have been considered: ProxiPro and AnyTime60 for Belgacom Mobile (B), Privat Plus for Tele Mobile (D), Telly-D1 for T-Mobil (D), Basic Program 2 for CosmOTE (EL), Personal for MoviStar (E), Declic for France Telecom Mobile (F), Eirtime 50 for EirCell (IRL), Menu Family for Telecom Italia Mobile (I), Liberty for PTT Mobile (L), Hi for KPN Mobile (NL), A1 Fun for MobilKom (A), Base for TNM (P), Private for Sonera (FIN), Pott for Telia (S), Net100 for BT Cellnet (UK).

[28] Representing 10% of the number of calls to fixed lines.

The charts below show the average monthly expenditure for the personal and business profiles in August 2000, expressed in €-PPP. EU average values are weighted by mobile penetration in Member States at August 2000.

Chart 14

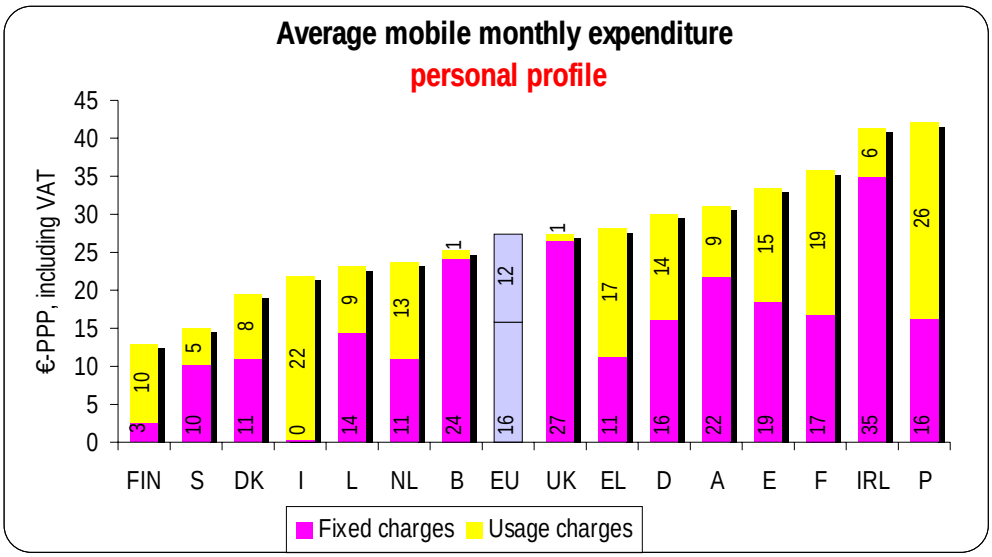
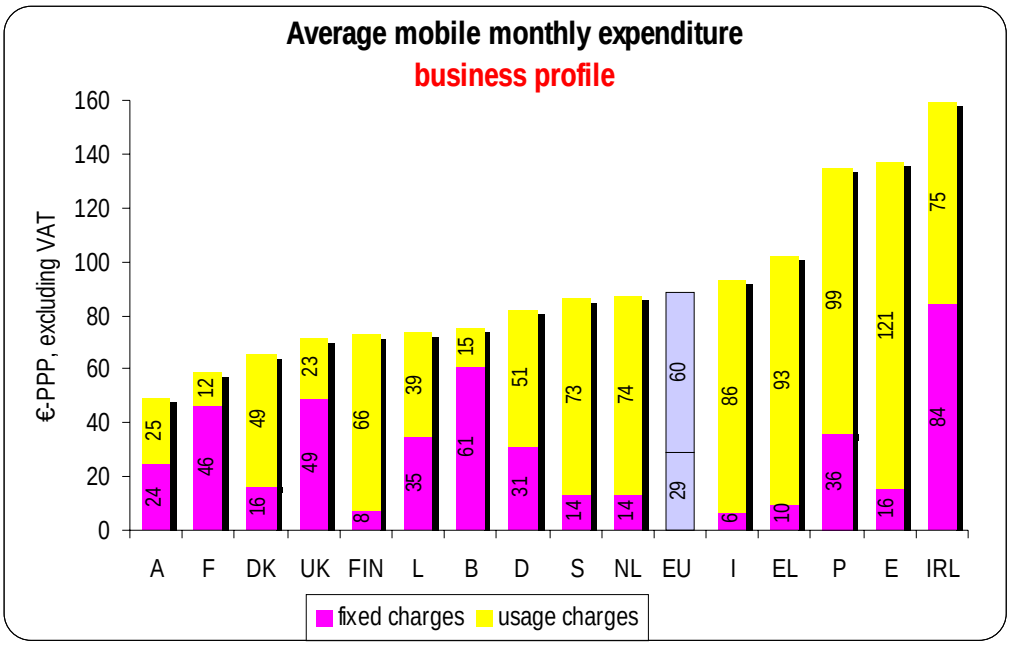


Chart 15



Annex 1

Telecommunications market data

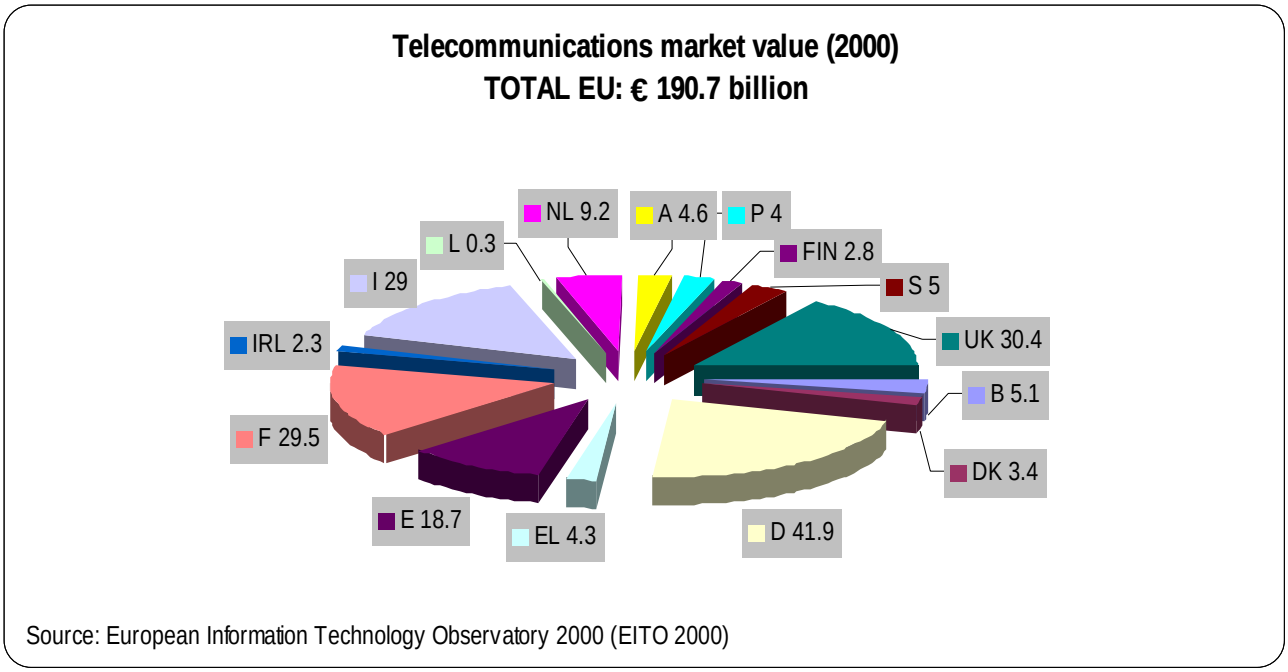
SIZE AND GROWTH OF EU TELECOMMUNICATIONS MARKET

This section provides estimates of the value of the EU telecommunications market and its breakdown into main segments (voice telephony, mobile services, switched data and leased line services).

Figures referring to 2000 are generally forecasts. Actual values calculated *ex post* might differ from those provided here.

Estimates of growth and penetration rates of mobile services and Internet usage are provided in the sections on "Mobile services" and "Internet" respectively.

Chart 1



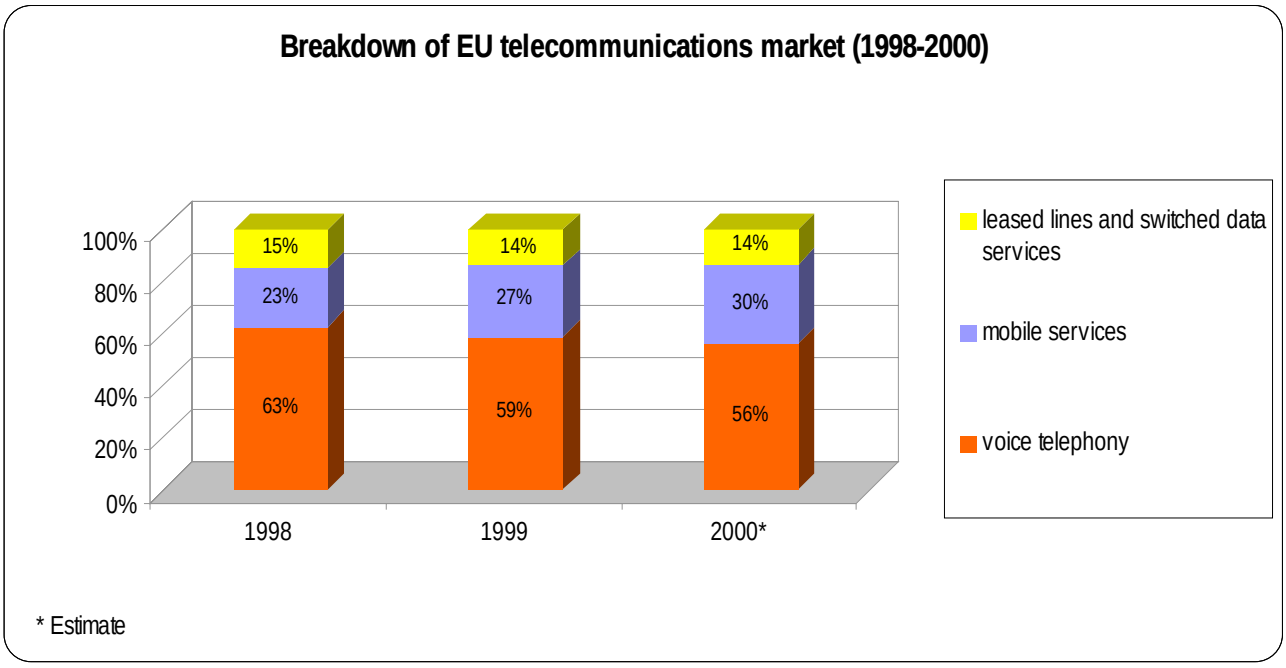
Source: European Information Technology Observatory 2000 (EITO 2000)

Estimates of 2000 revenues for public voice telephony (including home and business Internet dial-up access), network (switched data and leased lines) and mobile telephone services.

According to European Information Technology Observatory 2000 (EITO 2000) forecasts, the total value of the EU voice telephony, mobile and network services market will increase by more than 8% in 2000 compared with 1999, as a result of an average 9% growth in national markets.

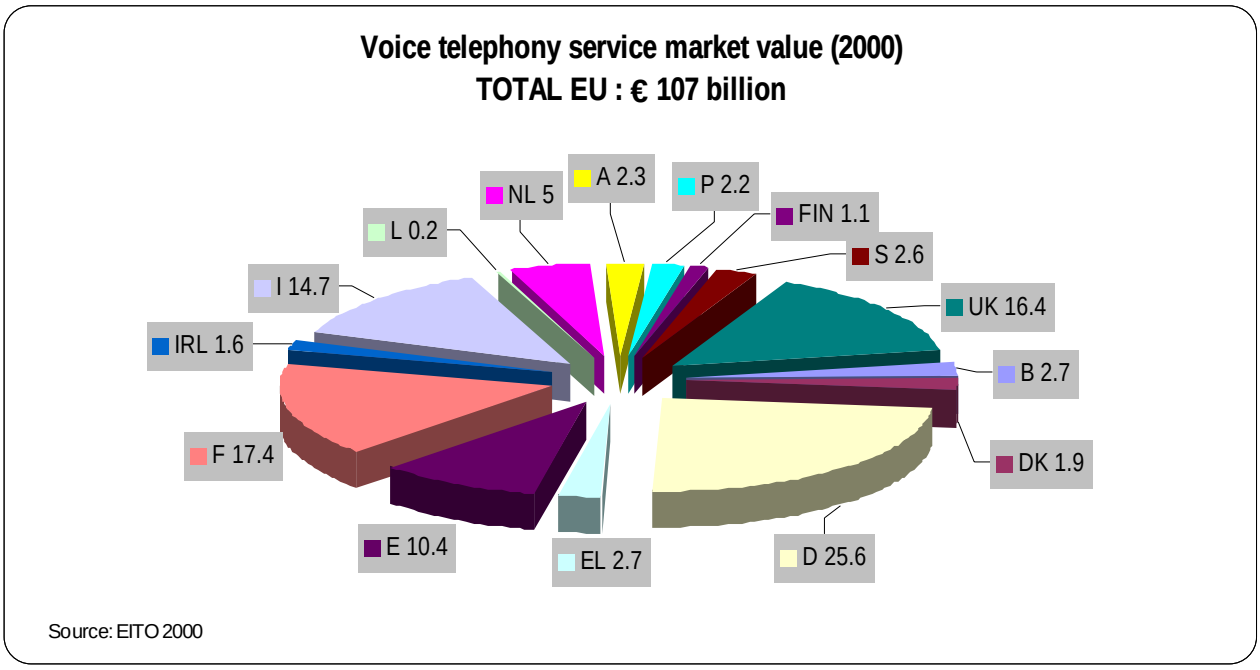
EITO provides a combined estimate for Belgium and Luxembourg. The figures given in this and the following charts are estimates based on the relative numbers of fixed lines and mobile subscribers in each of the two countries.

Chart 2



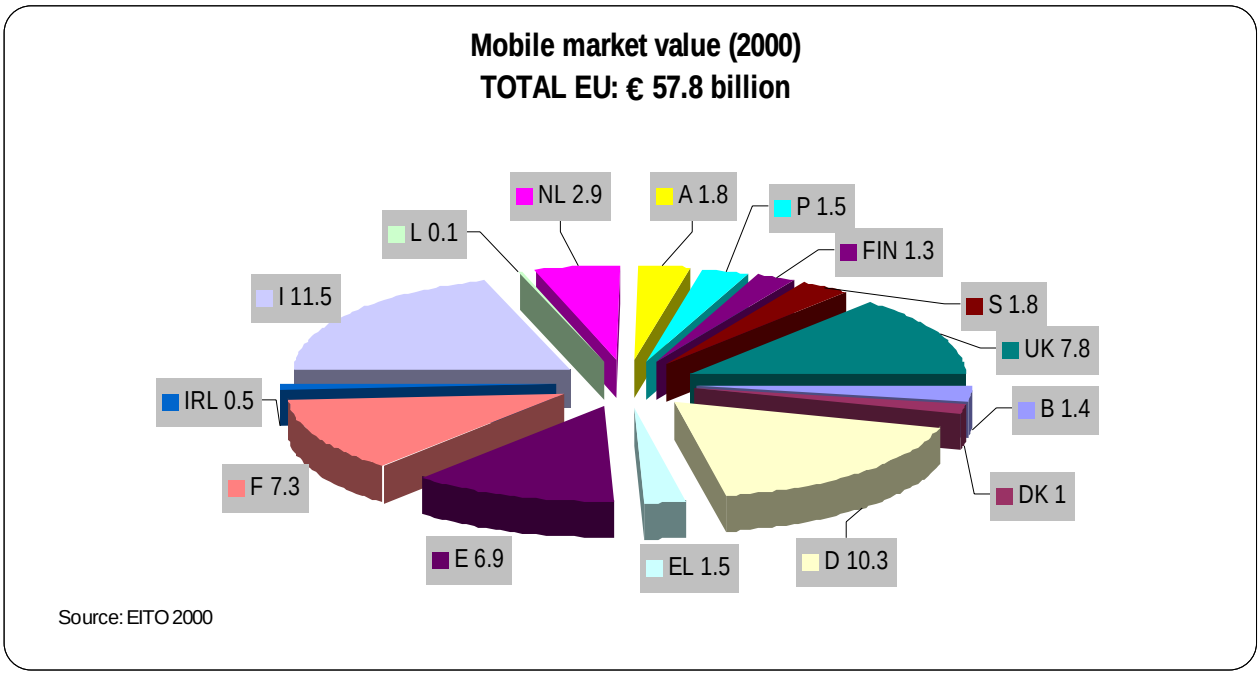
Breakdown of estimated 2000 revenues for telecommunications services into main market segments.

Chart 3



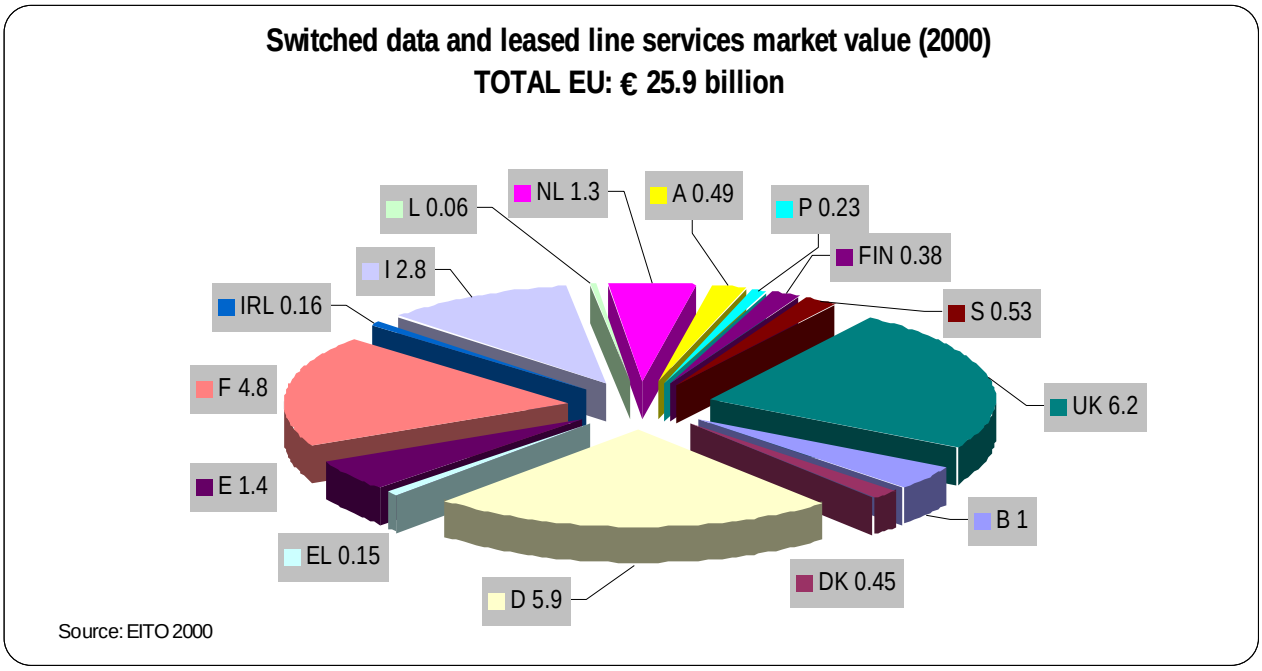
Estimates of 2000 revenues for public voice telephony.

Chart 4



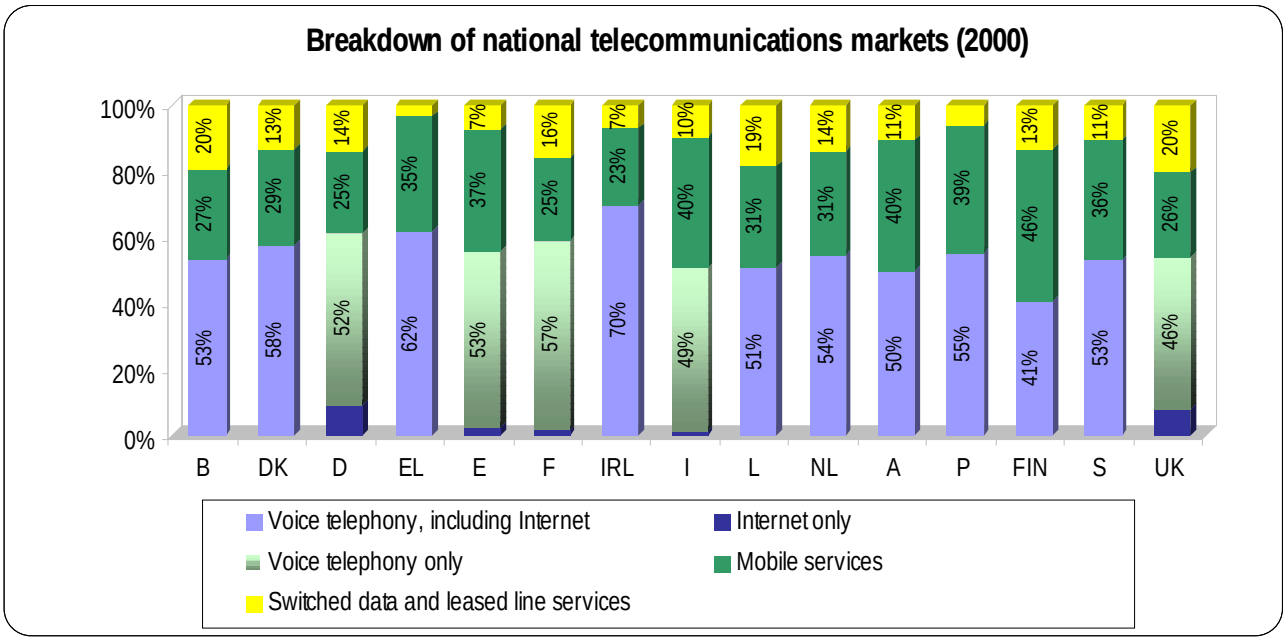
Estimates of 2000 revenues for mobile services.

Chart 5



Estimates of 2000 revenues for switched data and leased line services.

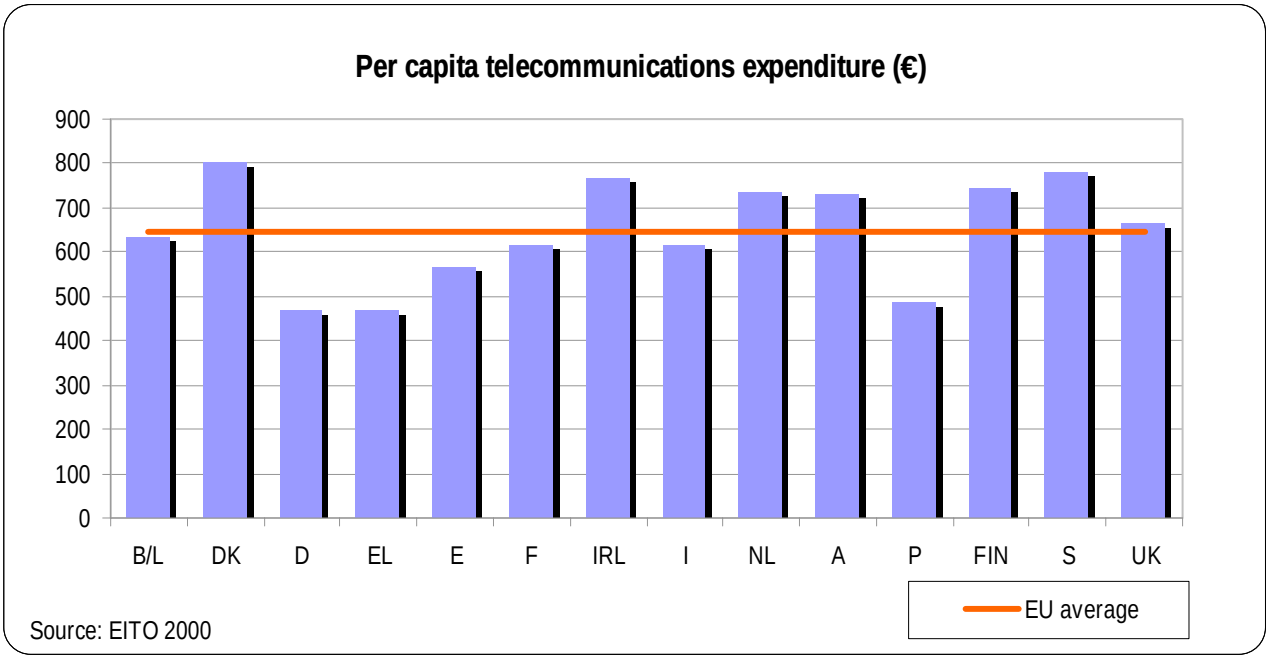
Chart 6



Breakdown of estimated 2000 revenues for telecommunications services into main market segments for each Member State.

The breakdown of revenues for PSTN traffic between voice telephony and Internet are available only for D, E, F, I and UK.

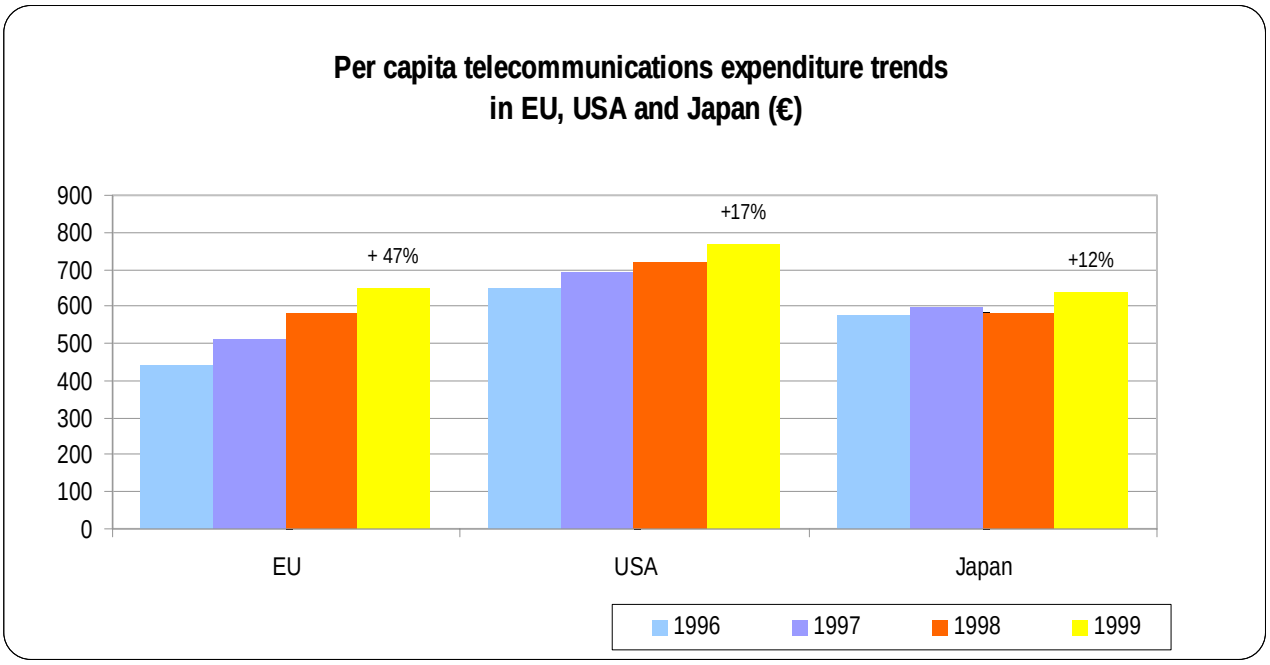
Chart 7



Per capita telecommunications expenditure in the EU in 1999.

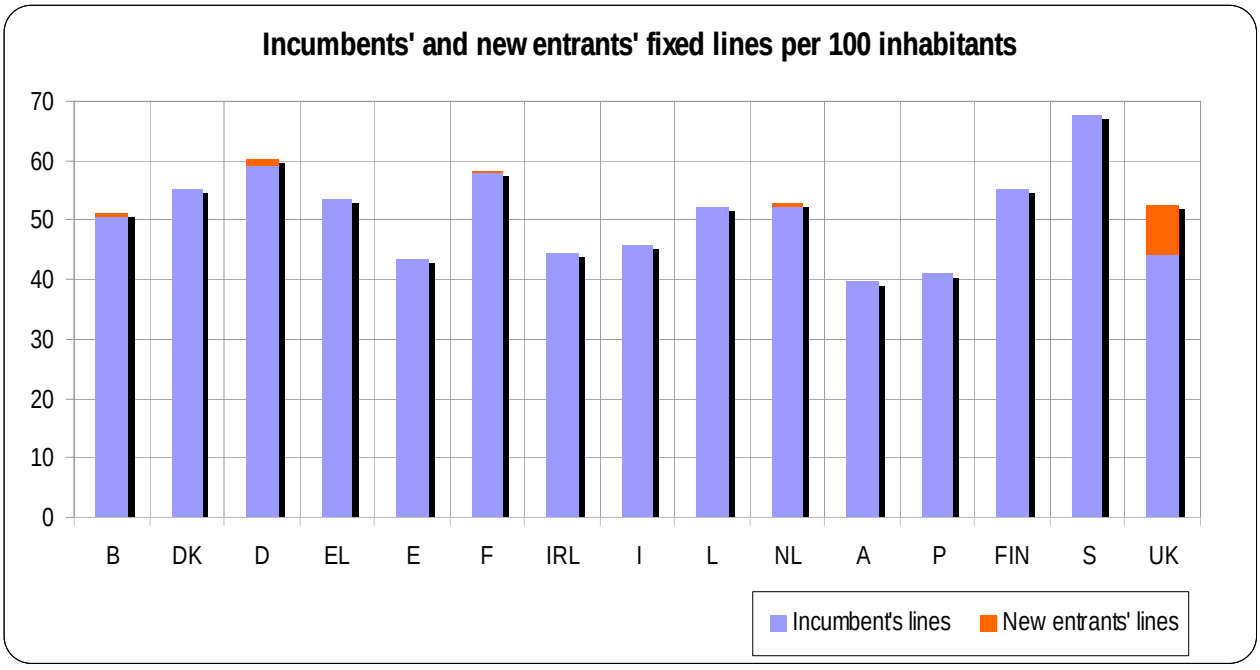
The figures refer to expenditure on telecommunications network equipment, telecommunications terminals and telecommunications services (voice, mobile, data, leased lines and cable TV), according to definitions provided by EITO 2000.

Chart 8



Growth of per capita telecommunications expenditure over the period 1996-1999 for the EU, the USA and Japan.

Chart 9



Penetration rate of incumbent's and new entrants' fixed lines in the EU countries.

The data on fixed lines refer to the situation in August for D, F, L, NL, S, in April for IRL, P, UK, and in January 2000 for the remaining countries. Data on new entrants' fixed lines are not available for DK, IRL, I, A and P.
The figures in the above chart are based on data collected from the NRAs. Due to a change in the underlying definitions, these figures are not comparable with those published in the Fifth Report.

1. MOBILE MARKET DATA

The following charts estimate for each Member State the number of mobile subscribers and the penetration rate at August 2000, and the growth in the penetration rate since August 1999.

Figures are taken from FT Mobile Communications (July 2000) and include both analogue and digital (second-generation) mobile subscribers.

EU average is a simple, rather than a weighted average.

Chart 1

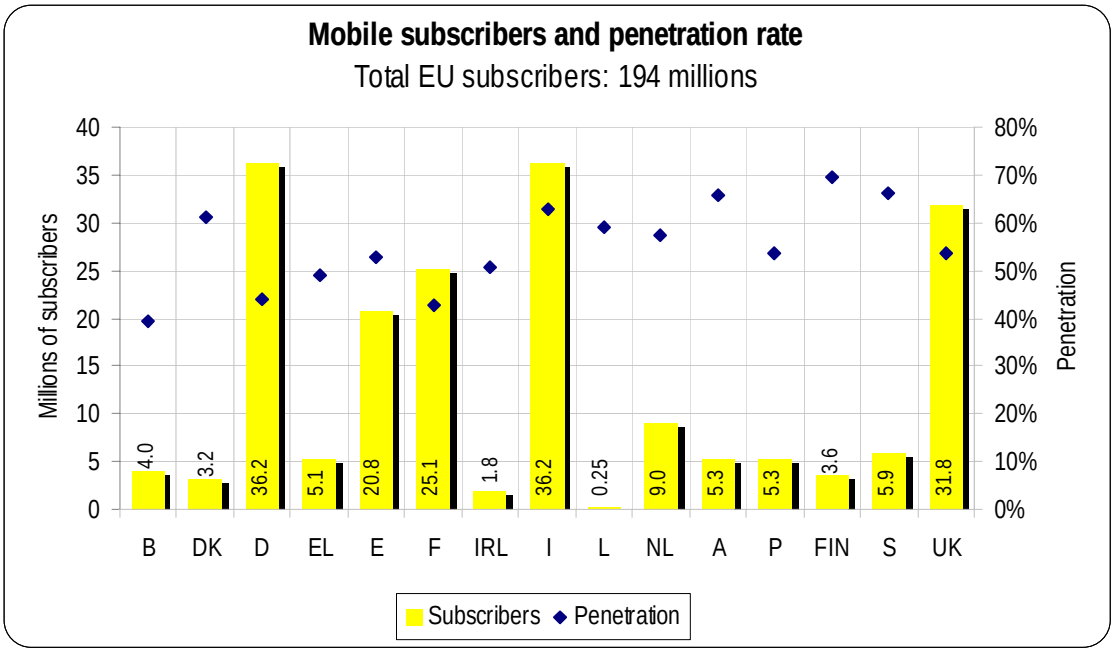
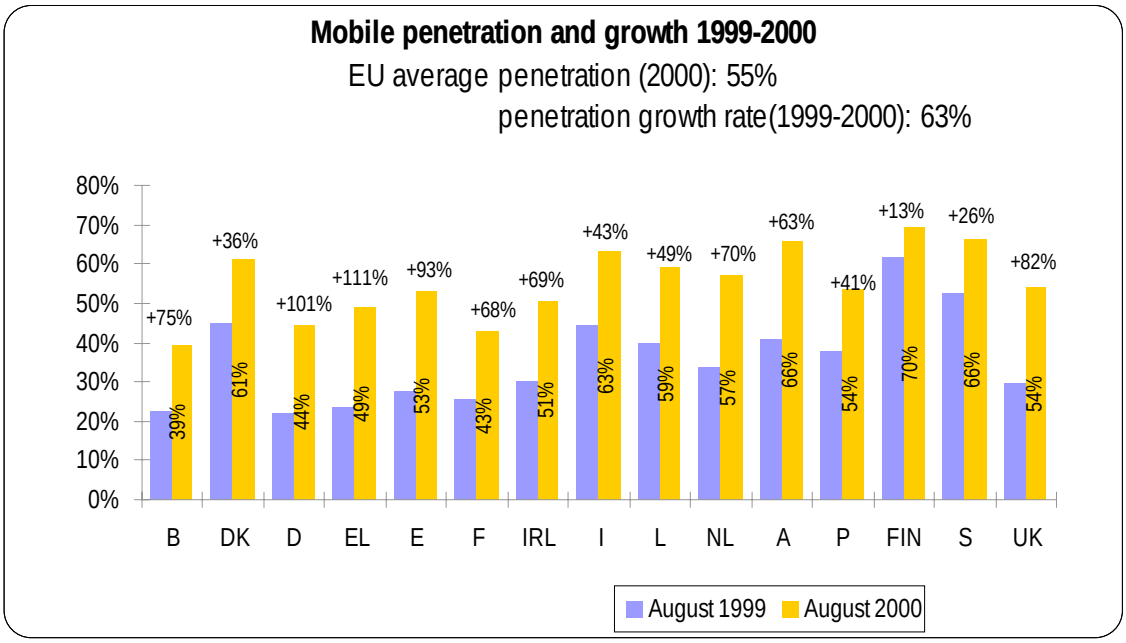


Chart 2



2. MOBILE OPERATORS

This section shows the number of mobile licences granted in each Member State for the provision of analogue, GSM 900, DCS 1800 and UMTS services.

The data on the number of licensed operators have been provided by the national regulatory authorities and indicate the position in August 2000.

Chart 3 shows the number of operators licensed to provide digital mobile services (second-generation). This indicates the real magnitude of the choice of operators for customers of digital mobile services, since very often operators have licences for both GSM 900 and DCS 1800. Mobile network operators have been identified as having only GSM 900 or only DCS 1800 frequencies, or both (in which case they have usually been granted a GSM 900 licence which has subsequently been extended to the DCS 1800 band).

Information on mobile service providers[1] has been included where available (without distinction between local and national coverage).

In Finland, 38 local telephone companies have been awarded licences to operate a local DCS 1800 service, but spectrum has been allocated to the two mobile operators, Radiolinja and Suomen 2 G, in which those companies participate. In the following charts we have only included Radiolinja and Suomen 2 G as national operators.

In the Netherlands, one "national" operator has been assigned several small local lots of DCS 1800 frequencies, which together allow coverage of the whole country.

The figure for France does not include 2 local analogue and 2 local GSM 900 licences granted to France Caraïbe Mobiles and Saint Martin Mobiles (both subsidiaries of France Telecom) for the overseas departments[2].

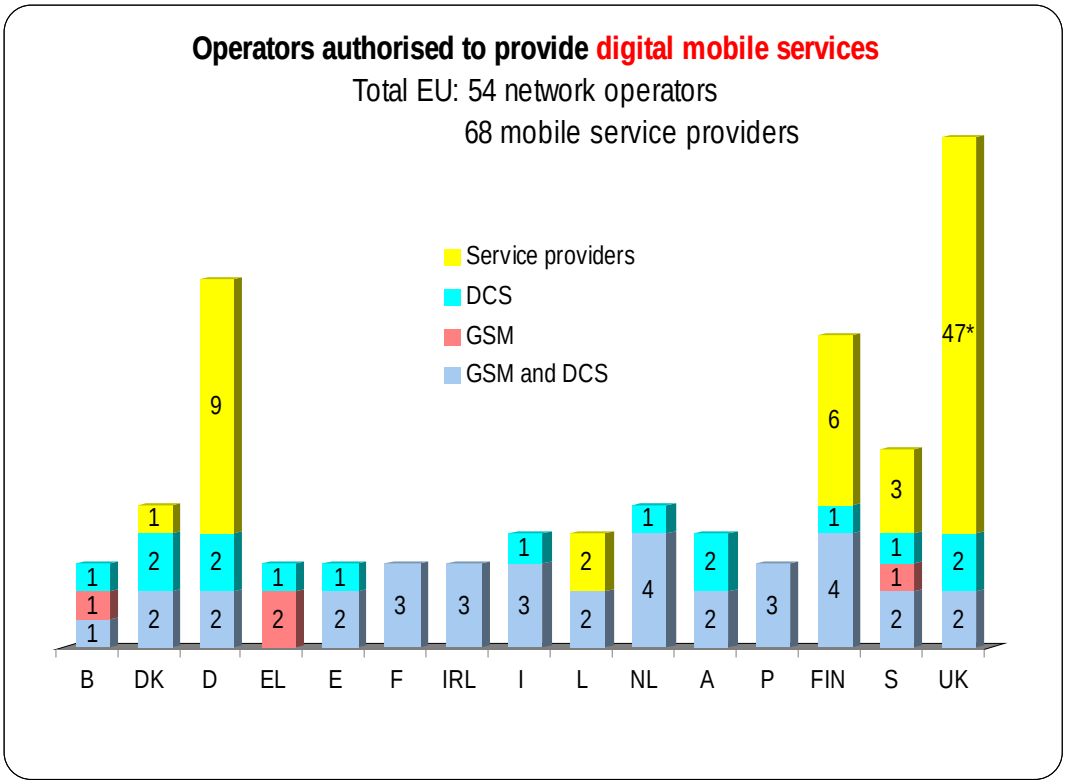
In the UK, the number of DCS operators is dependent on the expected sale of Orange by Vodafone.

[1] Mobile service providers are defined as entities authorised to offer mobile service under their own brand name (dealing with marketing, billing, etc.), using a third party's mobile network.

[2] Département de la Réunion, Antilles Françaises, Guyane; Île de Saint Martin et Saint Barthélémy)

All the operators are active on the market apart from one digital operator in Finland and one in Ireland (both GSM 900 and DCS 1800 frequencies).

Chart 3

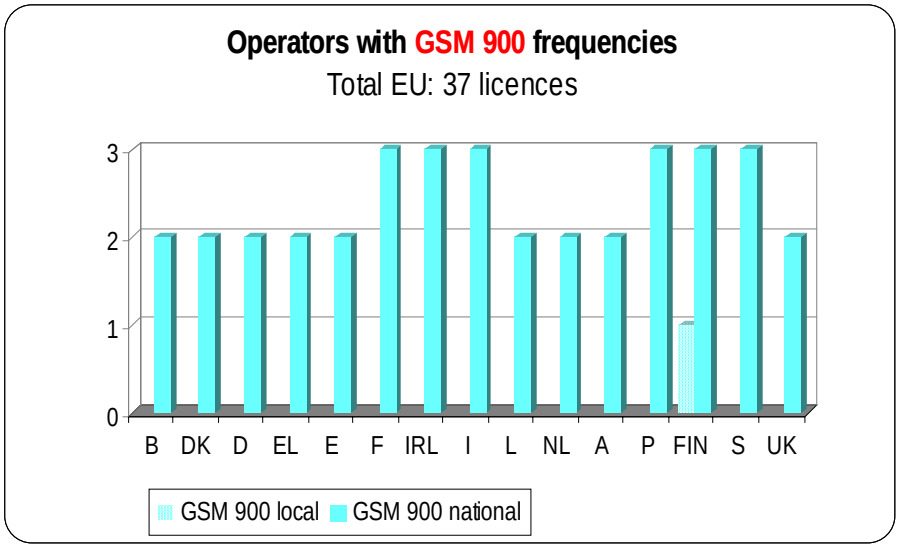


* Figure for UK is not to scale.

The figure for Finland in Chart 3 includes one local GSM network operator and one local mobile service provider.

Figures for mobile service providers do not distinguish between local and national operators.

Chart 4



In the following chart, the 2 local DCS 1800 frequencies in Austria have been granted as an extension of 2 national GSM licences.

Chart 5

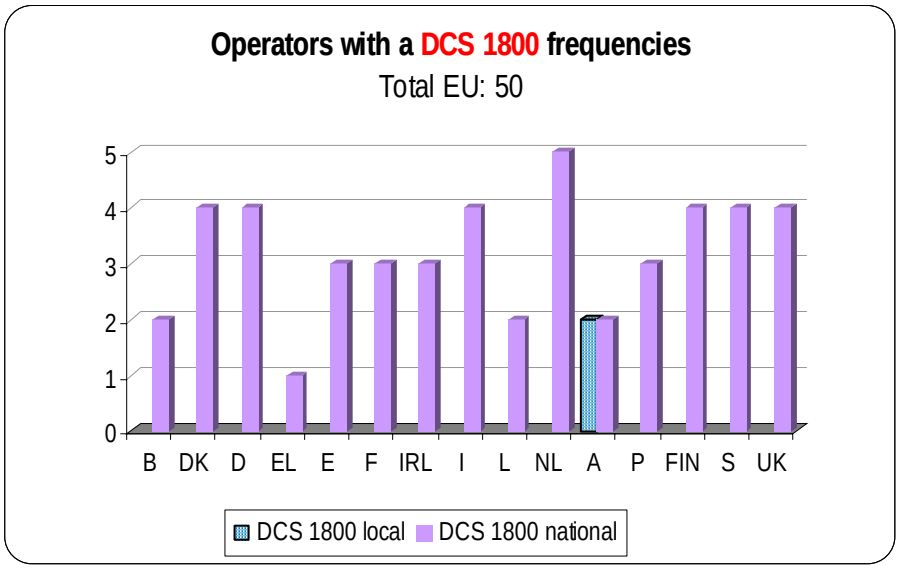


Chart 6 shows the number of analogue licences in each Member State and the date on which the phasing-out of these networks is expected to be completed.

In Sweden and Finland, the leading operators have also been granted an NMT 450 analogue licence. The phasing-out of this network in Sweden is expected to be completed by December 2004; no date has been set yet for the phasing-out of this network in Finland.

Apart from in the UK, only the subsidiary of the incumbent fixed network operator has an analogue licence.

Chart 6

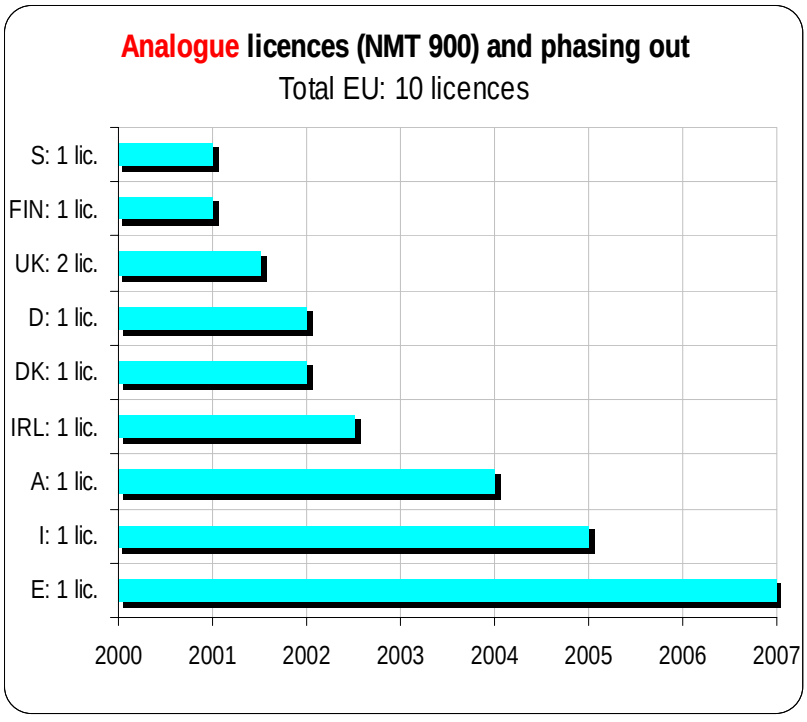
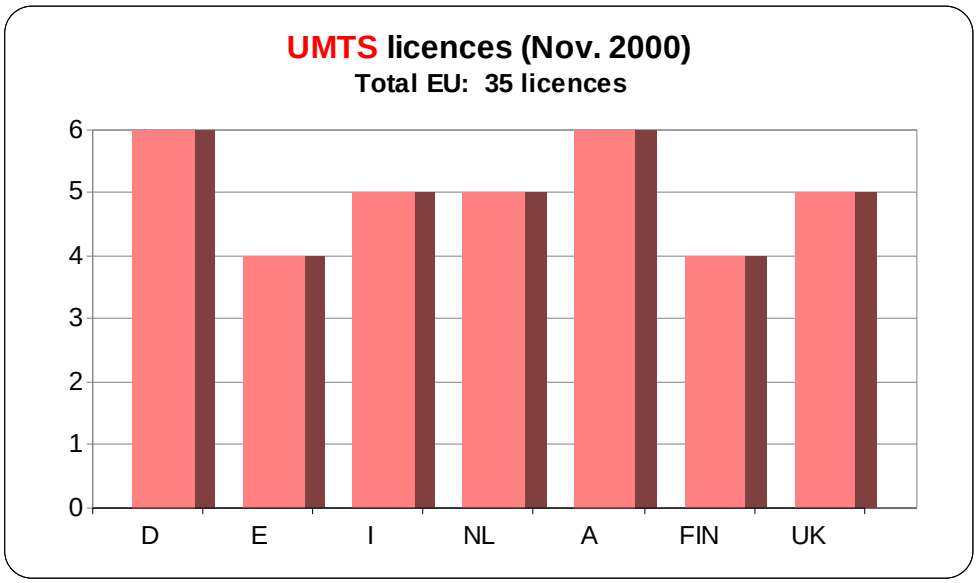


Chart 7



In Italy and Austria the auctions were completed by mid November, but the licensing process is still under way.

The figure for Finland does not include 2 local UMTS licences.

2.1 OPERATORS' MARKET SHARES

The following charts show the market shares, in terms of subscribers, of the main competitors in the mobile market.

Since in 9 countries the incumbent's subsidiary is still providing the analogue service on the basis of a de jure or de facto monopoly, the operators' market shares have been calculated on two different relevant markets: the overall mobile market (including analogue, DCS 1800 and GSM 900 subscribers) and the digital market only (DCS 1800 and GSM 900).

The data concerning shares of the mobile market are based on estimates of the number of mobile subscribers, taken from FT Mobile Communications, and refer to July 2000. They have been compiled on the same basis in each country, and are therefore comparable. However, different figures might be obtained if the underlying raw data were collected/estimated on a different basis (number of subscribers, pre-paid card, minutes of conversation, etc.) or if a different method of calculation were used.

Apart from in Greece and the United Kingdom, the leading operator is a subsidiary of the incumbent fixed network operator.

Chart 8

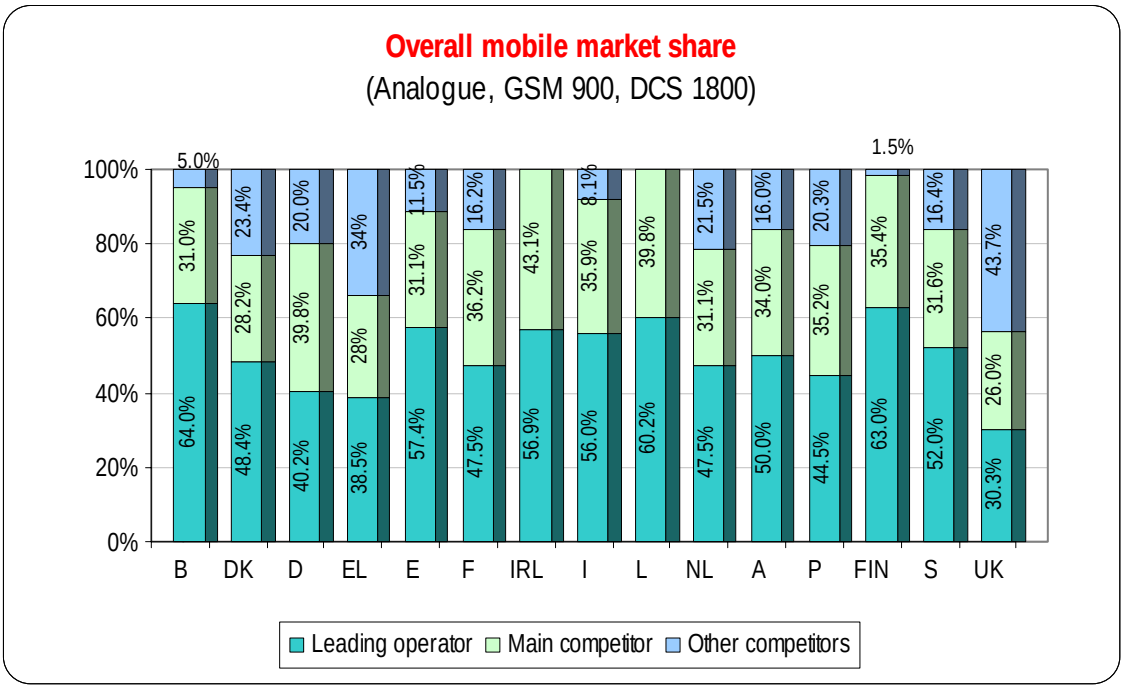


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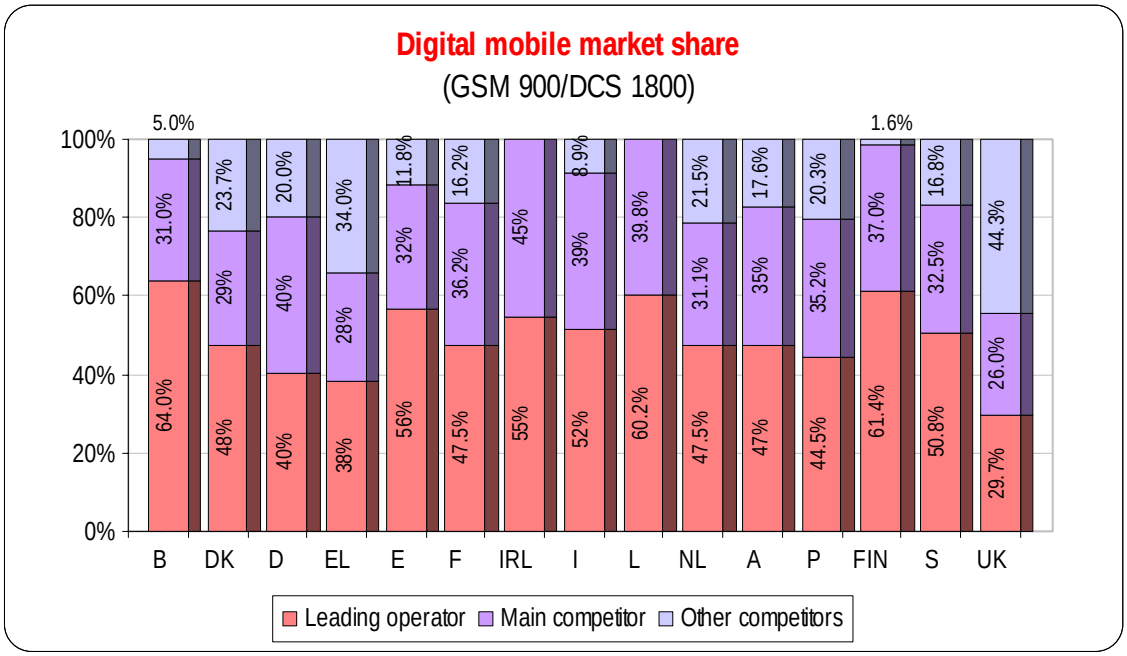
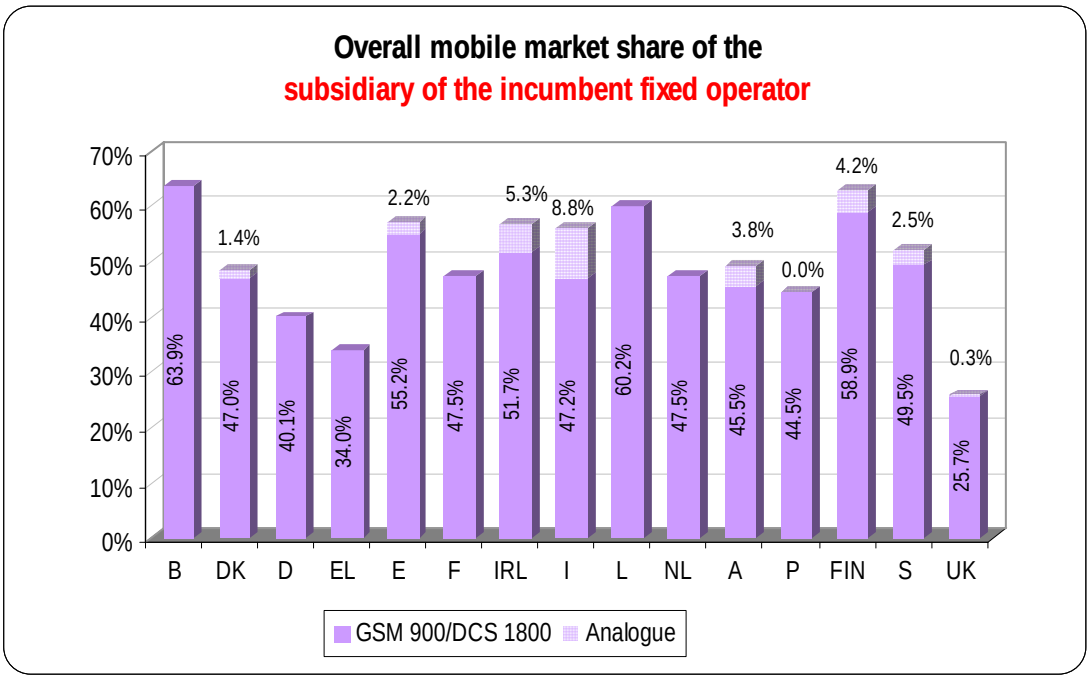
Chart 9



The following chart shows the share of the overall mobile market held by the mobile subsidiary of the incumbent fixed operator. Where the incumbent still operates the analogue service, the shares of the overall mobile market of their analogue and digital services are indicated separately.

Chart 10


Overall mobile market share of the
subsidiary of the incumbent fixed operator
70%
60%
50%
40%
30%
20%
10%
0%
63.9%
47.0%
1.4%
40.1%
34.0%
55.2%
2.2%
47.5%
51.7%
5.3%
47.2%
8.8%
60.2%
47.5%
45.5%
3.8%
44.5%
0.0%
58.9%
4.2%
49.5%
2.5%
25.7%
0.3%
B
DK
D
EL
E
F
IRL
I
L
NL
A
P
FIN
S
UK
GSM 900/DCS 1800
Analogue

3. FREQUENCY ALLOCATION TO MOBILE OPERATORS OF FIRST AND SECOND GENERATION

Table 1 provides information on the assignment of spectrum to operators of analogue, GSM 900 and DCS 1800 services in the 15 EU Member States. Analogue frequencies are not indicated if the phase-out of the service was completed by August 2000: this is the case for France Telecom (France), KPN Mobile (The Netherlands) and TMN (Portugal).

The various methods of assigning spectrum are identified as follows:

- **first come first served**: spectrum is assigned in order of application, until it is full. In order to contain demand, it is usual to apply rules ("need" criteria) on who may receive assignment, for what uses, and what bandwidth is appropriate for specific uses. The NRA may set a standard price calculated to reflect the market value of the frequencies assigned. This approach is used where spectrum is not scarce and there is no competition for licences. This category includes cases where a mobile licence is assigned to a subsidiary of the incumbent because the latter holds the concession for telecommunications services.
- **beauty contest**: licences are assigned to the "best qualified" among those applicants who meet the minimum criteria set by the NRA. Economic criteria are not taken into consideration (applicants do not bid a price). The NRA sets a standard price calculated to reflect the market value of the frequencies assigned.
- **beauty contest with economic criteria**: licences are assigned to those applicants who offer the best combination of money, plan, and qualifications.
- **auction**: licences are assigned to those applicants offering the most money.
- **other**: other definitions are used when the previous ones are not considered appropriate.

The date of assignment refers to the date of the first allocation of spectrum to the operators, although in some cases (e.g. in France, Italy and Sweden) frequencies have been released gradually.

In the case of Belgacom (Belgium), Entreprise des Postes et Télécommunications (Luxembourg) and all Swedish GSM operators, the duration of spectrum licences and operating licences does not correspond to the actual period of use of the assigned spectrum (the spectrum was already in use before formal licences were issued).

Table 1: Assignment of analogue, GSM 900 and DCS 1800 spectrum

.	Method of assignment	Spectrum assigned	Initial assignment	Duration of licence for:	
				Spectrum	Operations
BELGIUM					
Belgacom	First come first served[3]	2x12 MHz (GSM)	Apr. 95[3]	15 years	
	Extension of GSM licence	4.4 MHz (DCS)	May 99	Duration of GSM licence	
Mobistar	Beauty contest	2x12 MHz (GSM)[4]	Nov. 95	15 years	
KPN-Orange	Beauty contest	2x15 MHz (DCS)	Sep. 98	15 years	
DENMARK					
TeleDanmark	First come first served	2x 4.5 MHz (analogue, NMT) 2x5.8 MHz (analogue NMT)	Jan. 82, Dec. 95 (reissue) Jan. 87, Feb. 97 (reissue)	10 years 10 years	
	First come first served	2x8.8 MHz (GSM)	Nov. 1991	10 years	
	Beauty contest	2x14.4 MHz (DCS)	Mar. 1997	10 years	
Sonofon	Beauty contest	2x8.8 MHz (GSM)	Sep. 1991	10 years	
	Beauty contest	2x7.2 MHz (DCS)	Mar. 1997	10 years	
Telia	Beauty contest	2x14.4 MHz (DCS)	Mar. 1997	10 years	
Mobilix	Beauty contest	2x14.4 MHz (DCS)	Mar. 1997	10 years	
GERMANY					
DT Mobil	First come first served[5]	2x5.6 MHz (analogue)	1986	20 years	
	First come first served[5]	2x12.5 MHz (GSM)	Feb. 1990	20 years	
	Auction	2x5.0MHz (DCS)	Oct. 1999	10 years	
Mannesmann Mobilfunk	Beauty contest	2x12.5 MHz (GSM)	Feb. 1990	20 years	
	Auction	2x5.0 MHz (DCS)	Oct. 1999	10 years	
E-Plus Mobil	Beauty contest	2x22.5 MHz (DCS)	May 1993	19.5 years	
Viag Interkom	Beauty contest	2x22.5 MHz (DCS)	May 1997	19.5 years	
GREECE					
Panafon	Beauty contest	2x10 MHz (GSM)	Sep. 1992	20 years	
Telestet	Beauty contest	2x10 MHz (GSM)	Sep. 1992	20 years	
Cosmote	Direct allocation	2x25MHz (DCS)	Dec. 1995	25 years	

[3] Belgacom Mobile was assigned frequencies prior to January 1994 (date from which the operator started commercial operations). However, conventionally, the licence is considered to be valid from April 1995, i.e. when the Royal Decree of 7 March 1995, which opened the mobile sector to competition, entered into force. The frequency assignment was subject to the payment of the same concession fee as Mobistar.

[4] Mobistar is also entitled to request up to 2x15 MHz in the DCS 1800 frequency band.

[5] Under monopoly regime.

.	Method of assignment	Spectrum assigned	Initial assignment	Duration of licence for:	
				Spectrum	Operations
SPAIN					
Telefonica Movil	First come first served	2x16.6 MHz (analogue)	Dec. 1991	15 years[6]	
	First come first served	2x11.8 MHz (GSM)	Feb. 1995	15 years	
	Beauty contest	2x13.4 MHz (DCS)	Jul. 1998	25 years	
Airtel Movil	Beauty contest	2x11.8 MHz (GSM)	Dec. 1994	15 years	
	Beauty contest	2x13.4 MHz (DCS)	Jul. 1998	25 years	
Retevision Movil	Beauty contest	2x13.4 MHz (DCS)	Jul. 1998	25 years	
FRANCE					
France Telecom Mobiles	Extension of authorisation for analogue services[7]	Between 2x10.8 on average (GSM)	Mar. 1991	15 years	
	Extension of authorisation for analogue services	Between 2x13.2 on average (DCS)	Nov. 1998	Duration of GSM licence	
SFR	Extension of authorisation for analogue services[8]	Between 2x10.8 on average (GSM)	Mar. 1991	15 years	
	Extension of authorisation for analogue services	Between 2x13.2 on average (DCS)	Nov. 1998	Duration of GSM licence	
Bouygues Telecom	Beauty contest	Between 2x3.1 on average (GSM)	Nov. 1998[9]	15 years	
	Beauty contest	Between 2x23.2 on average (DCS)	Dec. 1994	15 years	
IRELAND					
Eircell	First come first served	2x10 MHz (analogue)	Dec. 1985	Renewable annually	15 years
	First come first served	2x7.5 MHz (GSM)	Jul. 1993	Renewable annually	15 years
	Operator had to justify requirement	2x14.4 MHz (DCS)	Jan. 2000	Renewable annually	15 years
Esat Digifone	Beauty contest	2x7.5 MHz (GSM)	May 96	Renewable annually	15 years
	Operator had to justify requirement	2x14.4 MHz (DCS)	Jan. 2000	Renewable annually	15 years
Meteor	Beauty contest	2x4.8 MHz (GSM)	Jun. 2000	Renewable annually	15 years
	Beauty contest	2x14.4 MHz (DCS)+	Jun. 2000	Renewable annually	15 years

[6] From the assignment of spectrum.

[7] The provision of analogues services was mandatory for FT's. The authorisation to provide analogue services is in the process of being abolished and frequencies have already been given back.

[8] The authorisation to the provision of analogue services had been granted by means of a beauty contest procedure. As for FT, it is in the process of being abolished and the operator has given back the frequencies.

[9] Although the assignment of the licence dates back to Dec. 1994.

.	Method of assignment	Spectrum assigned	Initial assignment	Duration of licence for:	
				Spectrum	Operations
ITALY					
TIM	First come first served	2x11.8 MHz (analogue)	Jul. 1990	15 years	
	First come first served	2x8.2 MHz +2x2.3MHz in large cities (GSM)	1994	15 years	
	Extension of GSM licence	2x4.8 MHz (DCS)	Jul. 1999	Same as GSM licence	
OPI	Beauty contest	2x8.2 MHz + 2x2MHz in large cities (GSM)	1994	15 years	
	Extension of GSM licence	2x4.8 MHz (DCS)	Jul. 1999	Same as GSM licence	
WIND	Beauty contest	2x4.8 MHz outside large cities (GSM)	Jul. 1999	15 years	
		2x9.8 MHz (DCS)	Jul. 1998	15 years	
Blue	Beauty contest	2x9.8 (DCS)	Aug. 1999	15 years	
LUXEMBOURG					
Entreprise P. et T.	Beauty contest	2x11.6 MHz (GSM)	Jun. 1993	15 years[10]	
	Beauty contest	2x9.8 MHz (DCS)	May 1998	15 years	
Millicom	Beauty contest	2x11.6 MHz (GSM)	May 1998	15 years	
	Beauty contest	2x9.8 MHz (DCS)	May 1998	15 years	
NETHERLANDS					
KPN-Mobile B.V.	First come first served[5]	2 x 16 MHz (GSM)	Sep. 1994	15.6 years	15 years
	Auction	2x16.2 MHz(DCS)	Feb. 1998	15 years	13 years
Libertel	Beauty contest	2x7.4 MHz (GSM)	Apr. 1995	15 years	15 years
	Auction	2x9 MHz (DCS)	Feb. 1998	15 years	15 years
Dutchtone	Auction	2x14.8 MHz (DCS)	Feb. 1998	15 years	15 years
	Auction	2x5MHz (E-GSM)	Feb. 1998	Same as DCS licence	
Telfort	Auction	2x16.8 MHz (DCS)	Feb. 1998	15 years	15 years
	Auction	2x6.2 MHz (E-GSM)	Feb. 1998	Same as DCS licence	
Ben Netherlands	Auction	2x15.6 MHz (DCS)	Feb. 1998	15 years	15 years
AUSTRIA					
Mobilkom Austria	First come first served[5]	2x11 MHz (analogue) but 2x8 since 1.01.2000	Nov. 1990	15 years[11]	
	First come first served[5]	2x8 MHz (GSM)	Jan. 1994	20 years	
	Extension of GSM licence	2x5 MHz (DCS) but only locally	Aug. 1999	Duration of GSM licence	

[10] Officially the licence has a duration of 15 years beginning in 1998, but use of the frequencies had started earlier.
[11] According to the national frequency plan usage ends in 2005.

.	Method of assignment	Spectrum assigned	Initial assignment	Duration of licence for:	
				Spectrum	Operations
Max.Mobil.	Beauty contest with economic criteria	2x8 MHz (GSM)	Jan. 1996	20 years	
	Extension of GSM licence	2x5 MHz (DCS) but only locally	Aug. 1999	Duration of GSM licence	
Connect Austria	Auction	2x16.8 MHz (DCS)	Aug. 1997	20 years	
Tele.ring	Auction	2x14.8 MHz (DCS)	May 1999	20 years	
PORTUGAL					
TMN[12]	Direct allocation[13]	2x8 MHz (GSM)	Mar. 1992	15 years	
	Extension of GSM licence	2x6 MHz (DCS)	Apr. 1998	Duration of GSM licence	
Telecel	Beauty contest[13]	2x8 MHz (GSM)	Oct. 1991	15 years	
	Extension of GSM licence	2x6 MHz (DCS)	Apr. 1998	Duration of GSM licence	
Optimus	Beauty contest[13]	2x7.8 MHz (GSM)	Nov. 1997	15 years	
	Contextual to GSM	2x6 MHz (DCS)	Nov. 1997	Duration of GSM licence	
FINLAND					
Suomen 2 G Oy	First come first served	2x2.1 MHz (GSM) from Jan. 2001: 2x8.6 MHz (GSM + E-GSM)	Aug. 2000	Max 20 years	20 years
Finnet Group/ Suomen 2 G Oy	First come first served	2x7.2 MHz (DCS)	Jun. 1996[14]	Max 20 years	20 years[15]
Oy Radiolinja	First come first served	2x9 MHz in the Helsinki area + 2x8.4 MHz in the rest of the country (GSM)	Feb. 1996	Max 20 years	20 years
	First come first served	2x7.2 MHz (DCS)	Jun. 1996	Max 20 years	20 years
Sonera OyJ	First come first served	2x4.5 MHz (NTM 450) 2x2.1 MHz (NTM 900)	NTM 450: 1981 NTM 900: 1986	Max 20 years	20 years
	First come first served	2x12.4 MHz in the Helsinki area + 2x11.6 MHz in the rest of the country (GSM)	Feb. 1990	Max 20 years	20 years
	First come first served	2x7.2 MHz (DCS)	Jun. 1996	Max 20 years	20 years
Telia Mobile Finland	First come first served	2x7.2 MHz (DCS)	Jun. 1996	Max 20 years	20 years

[12] Same licence for GSM and DCS services.

[13] However, in 1992, following the award of a GSM licence to the new operator Telecel, TMN had to present a formal request and to fulfil minimum conditions.

[14] This date refers to the granting of the spectrum licence to the Finnet Group. However, in August 2000 a spectrum licence for DCS 1800 was given to Suomen 2 G Oy, a new operator comprising almost all local companies of the Finnet Group. The new licence has replaced the one granted to the Finnet Group.

[15] 36 local licences to operate the service were granted to as many operators belonging to the Finnet Group. All the licences were granted between November 1997 and October 1999.

.	Method of assignment	Spectrum assigned	Initial assignment	Duration of licence for:	
				Spectrum	Operations
Alands Mobiltelefon	First come first served	2x8.2 MHz in Åland (GSM)	Feb. 1993	Max 20 years	20 years
SWEDEN					
Telia	First come first served	4.5 MHz (NTM 450) 2x1.9 MHz (NTM 450)	1981 1986	NMT450: ends Dec. 2004 NMT900: ends Dec. 2000	
	First come first served	2x7.2 MHz (GSM)	1992	10 years[16]	
	Beauty contest	2x15 MHz (DCS)	Feb. 1996	10 years	
Europolitan	Beauty contest	2x7.2 MHz (GSM)	1992	10 years[16]	
	Beauty contest	2x8.4 MHz (DCS)	Feb. 1996	10 years	
Tele2	Beauty contest	2x7.2 MHz (GSM)	1992	10 years[16]	
Netcom	Beauty contest	2x8.4 MHz (DCS)	Feb. 1996	10 years	
UNITED KINGDOM					
One2One	Beauty contest	2x30 MHz (DCS)	Mar. 1993	Renewable annually	25 years[17]
Orange Personal Comm.	Beauty contest	2x30 MHz (DCS)	Feb. 1994	Renewable annually	25 years[17]
Vodafone	Beauty contest	2x8.2 MHz (Analogue)	Jul. 1992	Renewable annually	25 years[17]
	Beauty contest	2x12.2 MHz (GSM)	Jul. 1992	Renewable annually	Same licence as analogue
	Extension of licence[18]	2x5.8 MHz (DCS)	Jul. 1996	Renewable annually	Same licence as analogue
BT Cellnet	Beauty contest	2x8.1 MHz (Analogue)	Jul. 1992	Renewable annually	25 years[17]
	Beauty contest	2x12.2 MHz (GSM)	Jul. 1992	Renewable annually	Same licence as analogue
	Extension of licence[18]	2x5.8 MHz (DCS)	Jul. 1996	Renewable annually	Same licence as analogue

4. FEES AND CHARGES PAID BY MOBILE OPERATORS OF FIRST AND SECOND GENERATION

The following chart shows the amount of fees paid by mobile operators in 1999 per 2x1 MHz expressed as euro per 1 000 inhabitants.

The figures include the annual fee/charges actually paid and part of the initial (one-off) fee and charges paid by the operator, which are spread over the duration of the licence. In order to make the figures comparable, the amount obtained has been divided by the number of MHz assigned to each operator and the population of the country concerned.

[16] A licence was granted only in 1995, although operations started in 1992.
[17] Subject to 10 years' notice, but notice cannot be given prior to 15 years of holding a licence.
[18] Following public consultation.

For Chart 11: Fees/charges paid by mobile operators in 1999 per 2x1 MHz (€ per 1000 inhabitants), please return to the index page "Sixth Report on the Implementation of the Telecommunications Regulatory Package" and click on the hyperlink: "Chart 11"

Notes to the Chart “Fees/charges paid by mobile operators in 1999 per 2x1 MHz”:

i. This chart is based on the information concerning the spectrum assigned and the duration of the spectrum licence set out in the table “Assignment of analogue, GSM 900 and DCS 1800 spectrum". Where the spectrum licence is described as renewable, the longest possible duration has been taken into account.

ii. Where spectrum is not assigned nationwide, the frequencies assigned to an operator have been weighted by the percentage of population living in the area covered by those frequencies.

iii. Unlike the information set out in the previous table, the chart only takes account of frequencies for digital services (i.e. it excludes frequencies for analogue services), except in the case of Eircel (Ireland), TIM (Italy) and Telefónica Móviles España (Spain), for which it is not possible to separate the fees for the two services.

iv. Meteor (Ireland), Suomen 2G Oy (Finland) and Tele2 (Sweden) are not included, because they did not have any frequencies in 1999. Likewise, frequencies assigned during 2000 have not been taken into account in the case of Eircell and Esat Digifone (Ireland) and in the case of French operators.

v. For the purposes of this chart, all frequencies are assumed to have been assigned to the operators on the date of the first assignment of spectrum, which is not necessarily the case for all operators.

vi. In the case of Belgacom (Belgium), Entreprise des Postes et Télécommunications (Luxembourg) and all Swedish GSM operators, the duration of the licences, rather than the actual use of the assigned spectrum, has been considered.

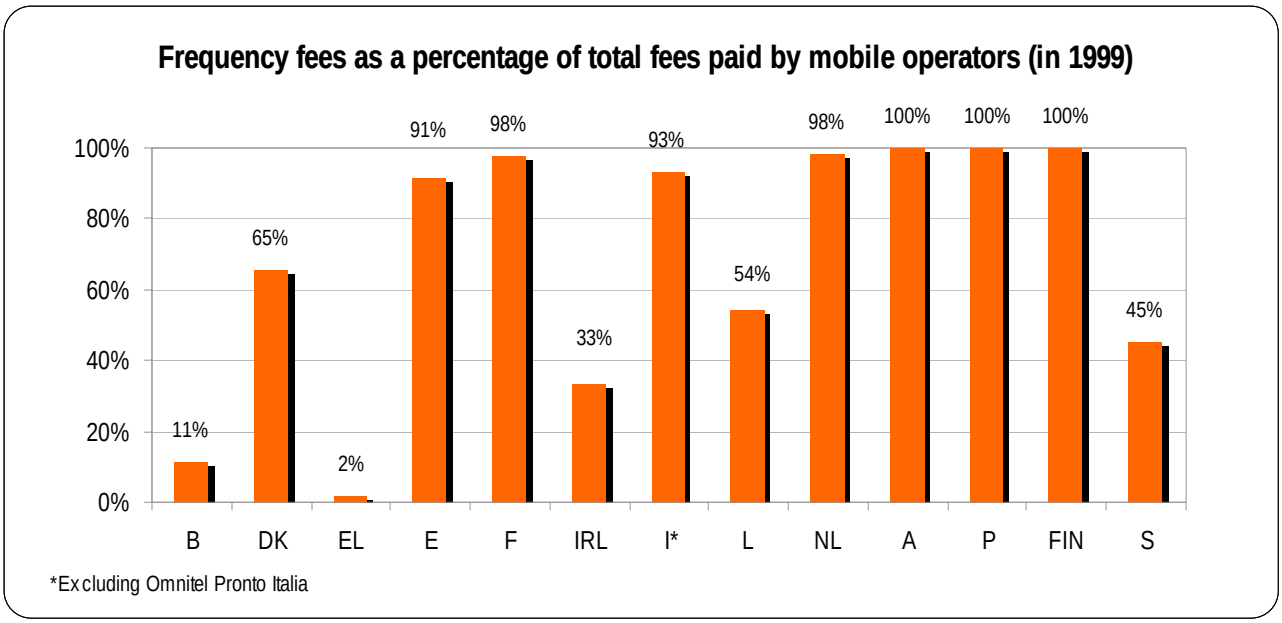
vii. In some countries the above fees also cover the cost of numbering resources (which is explicitly excluded in The Netherlands and Denmark).

viii. The fees paid by German operators are not included, as they have not yet been calculated by the regulator (as at 15 September 2000).

ix. The fees paid by UK operators refer to frequency fees only and do not include the annual licence fees paid under the Telecommunications Act, the amount of which is considered confidential. The fees paid by Swedish operators are not included because this information was not provided.

x. The fees paid by Italian operators include only part of the refarming costs for the liberation of DCS frequencies

Chart 12



Nature of fees and charges paid by 2G[19] mobile operators in 1999.

The classification of these fees varies from country to country, ranging from administrative fees (intended to cover the costs of the licensing procedure only), to licence fees (rights or royalties), frequency fees and charges to cover the cost of spectrum refarming. The chart shows frequency and frequency-related fees/charges (as opposed to administrative and other licence fees) as a percentage of the total fees/charges paid in 1999.

UK operators are excluded from this chart because information on the total amount of fees paid could not be provided. Omnitel Pronto Italia is excluded from the estimates concerning the Italian operators because it not possible to ascertain which of the fees/charges paid relate to frequencies.

[19] In a few cases, analogue frequencies might also be covered. Please refer to the notes to the Chart "Fees/charges paid by mobile operators in 1999 per 2x1 MHz".

5. FREQUENCY ALLOCATION AND FEES/CHARGES PAID BY MOBILE OPERATORS OF THIRD GENERATION

Table 2: Assignment of 3G spectrum (as of 1 September 2000)

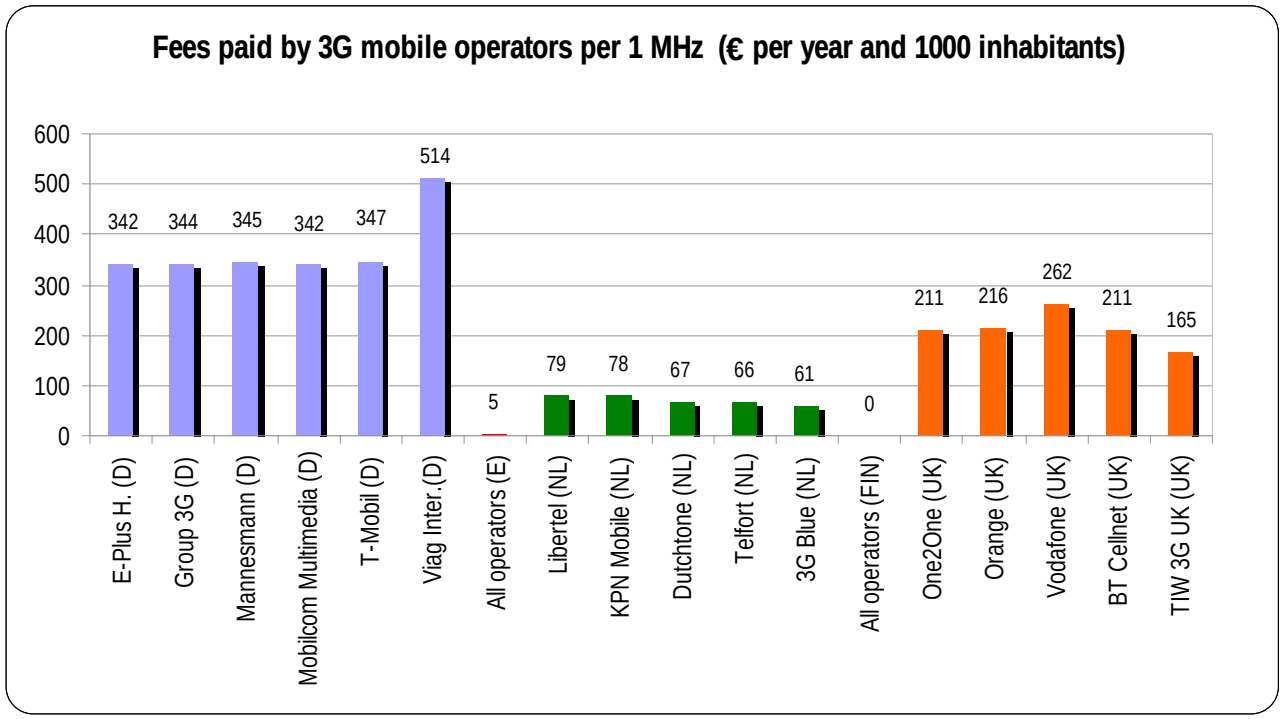
Date	Method	Duration of licence[20]	Licensees	Spectrum assigned	One-off spectrum fees (€)
GERMANY					
Aug. 2000	Auction	20 years	E-Plus Hutchinson	2x5+5 MHz	8 432 000 000
			Group 3G	2x5+5 MHz	8 459 000 000
			Mannesmann Mobil.	2x5+5 MHz	8 485 000 000
			Mobilcom Multimedia	2x5+5 MHz	8 431 000 000
			T-Mobil	2x5+5 MHz	8 535 000 000
			Viag Interkom	2x5 MHz	8 445 000 000
SPAIN					
Mar. 2000	Beauty contest	20 years	Telefonica Movil	2 x15+5 MHz per operator	131 321 145 per operator
			Airtel Movil		
			Retevision Movil		
			Xfera Movil		
THE NETHERLANDS					
Jul. 2000	Auction	16.5 years	Libertel	2 x15+ 5 MHz (A)	713 800 000
			KPN Mobile	2 x15+ 5 MHz (B)	711 070 000
			Dutchtone	2x10+ 5 MHz (C)	435 630 000
			Telfort	2x10+ 5 MHz (D)	430 000 000
			3G Blue	2x10+5 MHz (E)	394 970 000
FINLAND					
Jun. 2000[21]	Beauty contest	20 years	Oy Radiolinja	2x15+5 MHz per each operator	0[22]
			Sonera OyJ		
			Suomen Kolmege Oy		
			Telia Mobile Finland		
Not yet assigned	Beauty contest	As above	Tele 1 Europe	2x15+5 MHz (only Åland province)	0[22]
			Ålands Mobiltelefon		

[20] The duration is intended from the date of granting of spectrum unless specified.
[21] However, the national and local licences were granted respectively in March and September 1999.
[22] Finnish operators did not pay any fee for the initial assignment of spectrum. Annual frequency fees according to the general regulation will apply when commercial operations start.

Date	Method	Duration of licence[23]	Licensees	Spectrum assigned	One-off spectrum fees (€)
UNITED KINGDOM					
May 2000	Auction	21 years	TIW 3G UK	2x15+5 MHz (A)	7 185 300 000
			Vodafone	2x15 MHz (B)	9 773 300 000
			BT Cellnet	2x10+5 MHz (C)	6 560 700 000
			One2One	2x10+5 MHz (D)	6 560 700 000
			Orange	2x10+5 MHz (E)	6 710 500 000

Table 2 summarises the situation concerning the assignment of spectrum for the provision of third-generation (3G) mobile services in the EU on 1 September 2000. The last column shows the charges that operators had to pay for the initial assignment of spectrum. Any additional fees or annual charges for spectrum, numbers, etc. are not included.

Chart 13



The chart shows the amount of fees paid for the initial assignment of spectrum divided by the number of MHz assigned to each operator, the duration of the spectrum licence and the population of the country that granted the licence.

Note that, unlike the previous chart on fees and charges paid by 2G operators, this chart shows fees per MHz of spectrum (paired or unpaired).

[23] The duration is intended from the date of granting of spectrum unless specified.

6. NATIONAL DIGITAL MOBILE TARIFFS

This section analyses the tariffs for national mobile services.

The figures are intended to provide an estimate of the average monthly expenditure on (national[24]) digital[25] mobile phone calls of two "standard" consumption profiles: personal and business. Users are assumed to use a post-paid tariff plan available from the incumbent fixed network operator's mobile subsidiary[26]. Lower prices may be charged by other mobile operators: the figures are therefore purely indicative, and do not necessarily reflect the cheapest solution available.

For each operator, the tariff package considered most appropriate for each of the two consumption profiles has been selected, based on an analysis of the range of packages offered[27].

The analysis is provided by Teligen Foundation and is based on a basket of digital mobile calls (defined on an annual basis).

The fixed (i.e. non-recurring) charges include the annual line rental charge plus the charge for activation. Fixed charges for personal profile users include VAT, while for business profile VAT is excluded.

The mobile usage charges include national and international[28] mobile calls. The national calls comprise calls to local fixed-line phones (70%), calls to distant fixed-line phones (20%) and calls to mobile phones in the same network (10%). The personal profile comprises 200 national calls and 2 international calls, and is weighted towards afternoon and evening. The business profile comprises 1 200 national calls and 60 international calls, and is heavily weighted towards business hours. Call duration is three minutes for all calls. Call charges reflect the total charge for each call, including call set-up and minimum charges, as defined in the tariff. The international portion of the baskets follows the basic structure of the international fixed baskets for business and residential users (see tariffs section), the only difference being the call duration (which is always three minutes for the mobile basket).

The mobile subsidiaries of the incumbent fixed operators in Belgium, Ireland, Sweden and the United Kingdom include an amount of free calls or minutes, or other call-related allowances, in the package price; the value of this allowance is deducted from the usage charges.

The basket does not take account of the price of the handset, or handset subsidies. The low fixed charges in Finland and Italy are linked to the fact that the customer pays only for network access, and must buy a handset separately. The fixed charges reflect the minimal cost of connecting a customer to the network. The high rentals charged by some operators are in most cases due to a policy of subsidising disadvantaged users.

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[24] In the sense that it does not include roaming.

[25] Second-generation (GSM 900 and DCS 1800).

[26] Belgacom Mobile in Belgium, Tele Mobile in Denmark, T-Mobil in Germany, CosmOTE in Greece, MoviStar in Spain, France Telecom Mobile in France, EirCell in Ireland, Telecom Italia Mobile in Italy, P&T Mobile in Luxembourg, KPN Mobile in the Netherlands, MobilKom in Austria, TNM in Portugal, Sonera in Finland, Telia in Sweden, BT Cellnet in the United Kingdom.

[27] For the business profile the following packages have been considered: ProxiPro and AnyTime300 for Belgacom Mobile (B), Erherv Plus for Tele Mobile (D), Pro Tel-D1 for T-Mobil (D), Basic Program 2 for CosmOTE (EL), Personal for MoviStar (E), Loft Forfait 5H for France Telecom Mobile (F), Eirtime 250 for EirCell (IRL), Menu Business for Telecom Italia Mobile (I), Business for P&T Mobile (L), Flexible Premium for KPN Mobile (NL), A1 Geschäft for MobilKom (A), Normal for TNM (P), Business for Sonera (FIN), Volym for Telia (S), Net400 for BT Cellnet (UK).

For the personal profile the following packages have been considered: ProxiPro and AnyTime60 for Belgacom Mobile (B), Privat Plus for Tele Mobile (D), Telly-D1 for T-Mobil (D), Basic Program 2 for CosmOTE (EL), Personal for MoviStar (E), Declic for France Telecom Mobile (F), Eirtime 50 for EirCell (IRL), Menu Family for Telecom Italia Mobile (I), Liberty for PTT Mobile (L), Hi for KPN Mobile (NL), A1 Fun for MobilKom (A), Base for TNM (P), Private for Sonera (FIN), Pott for Telia (S), Net100 for BT Cellnet (UK).

[28] Representing 10% of the number of calls to fixed lines.

TARIFFS

INCUMBENTS' RETAIL TARIFFS FOR PUBLIC FIXED VOICE TELEPHONY

This section examines the charging system, the line rental charges and the main tariffs for public fixed voice telephony charged by the incumbent operators in each Member State[1] in August 2000. The price trend over the past three years is also analysed.

The incumbent operators still retain a large market share, but new entrants are increasingly gaining market share by offering cheaper prices for certain types of call (usually long-distance or international) or destinations. These figures do not, therefore, represent the lowest prices available.

The figures and information are taken from a study carried out for the Commission by Teligen Foundation. The data are collected from primary sources (i.e. directly from the incumbent operators). For some types of calls, a benchmark based on a comparison with US and Japan is also included.

Two different sets of charges for fixed national voice telephony services are shown in the following sections: the charges for a basket of calls (local, long-distance, international fixed calls and calls to mobile) and the price of some individual calls (3- and 10-minute local, long-distance and international calls).

The charge for a basket of national calls gives an estimate of the average monthly spending by a typical "European business/residential user". In the case of international tariffs, the basket of international calls for each country indicates the average price of a single call from the originating country to all other OECD destinations.

The tariffs for a 3- and 10-minute call at peak time are intended to show the call charges paid by the consumer for individual calls (local, long-distance and international). Thus for incumbents which apply unit-based charging (see chart 1), the price of a whole unit is calculated. The euro exchange rate expressed in terms of purchasing power parities (€-PPP) has been applied, in order to compare the retail price level between Member States in real terms, rather than nominal terms (see appendix for more details on € and €-PPP exchange rates). Official EURO rates are used, referring to August 2000, even for past years, in order to avoid showing changes in exchange rates. Price increases/decreases over time are in nominal rather than real terms (i.e. the effects of inflation are not excluded).

Unlike in previous years, the "EU average tariffs" shown in the charts are weighted (by population of the Member States in 1999) rather than simple averages. For this reason the figures are not comparable.

[1] The incumbent operators considered are the following: Belgacom for Belgium, Tele Denmark for Denmark, Deutsche Telekom for Germany, OTE for Greece, Telefonica for Spain, France Telecom for France, Eircom for Ireland, Telecom Italia for Italy, P&T Luxembourg for Luxembourg, KPN for the Netherland, Telekom Austria for Austria, Portugal Telecom for Portugal, Sonera for Finland, Telia for Sweden, British Telecom for the United Kingdom.

1. CHARGING SYSTEM

The billing system for public voice telephony services usually comprises two components: an initial charge applied at the beginning of a call and a charge for the remainder of the call (that may not depend on the type of initial charge used).

1. INITIAL CHARGES

The initial charge can take the following two forms.

- **Call set-up charge** which applies as soon as the call is answered. This charge may include a number of seconds of call time before normal time-based charging starts (in this case it is also called *initial charge*). In some cases the call set-up charge applies only if the time-based charge for the call is less than the call set-up charge, to ensure that operators receive a minimum revenue per call (in this case it is also called *minimum charge*).
- **Unit charge**, which has the same effect as the initial charge. A full unit is charged at the beginning of the call, and includes a number of seconds of call time until the next unit is charged. Depending on the principle used by the operator (synchronous/asynchronous), the number of seconds of call time in the first unit may be less than the specified unit duration.

2. CHARGING SYSTEM DURING THE CALL

Operators currently use two main ways of charging calls: real time charging or unit-based charging. Both are used in conjunction with an initial charge (call set-up or minimum charge). Most operators publish duration charges on a per-minute basis, irrespective of which system is used.

The two systems are:

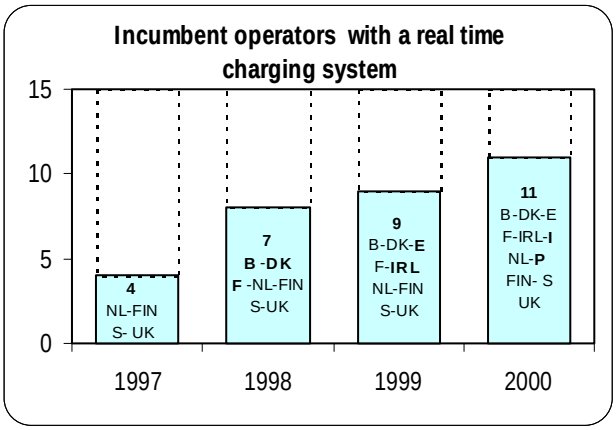
- **Real time charging** (also known as per-second billing): the duration charge is directly proportionate to the exact duration of the call (normally to the nearest second). A call set-up charge may also apply.
- **Unit-based charging** uses a fixed price unit[2]. The duration of this unit varies according to the destination of the call and time of day. Call duration is always rounded up to a multiple of whole units, so the user will nearly always pay for more time than is used. A call set-up charge may apply, but is relatively rare.

The real time charging method can be perceived as being more convenient for users, as it is the most transparent method (users only pay for what is actually used). However, there is no guarantee that this method will result in the lowest call charge: most of incumbent operators have switched from a unit-based system to real time charging, keeping the same average duration charge, but adding a (new) call set-up charge, resulting in a higher overall cost per call. This especially affects medium-length calls, depending on the price structure before and after the change. This effect was seen for the incumbent's tariffs in Netherlands a few years ago, and now in Italy.

[2] A variation of this method, used in the US, is **fixed period charging,** which uses a variable price, but fixed duration unit. The call is normally charged on a per-minute or per 6-seconds basis. The price for the period will vary according to destination and time of day. The charged duration of the call is rounded up to a multiple of whole periods. A call set-up or initial charge is often applied in the form of a higher charge for the first period. This initial charge may vary according to destination and time of day.

During the last three years more and more incumbent operators have been moving from a unit-based to a real time charging system, and in August 2000 only the incumbents in Greece, Luxembourg, Austria and Germany (for local calls only[3]) still use a unit-based charging system[4].

Chart 1



Call set-up charges may vary according to the type of call (local, long-distance, international, calls to mobile), and for international calls according to destination.

The following charts show the call set-up charges for long-distance calls and calls to mobile charged by the incumbent operators. The free call time (i.e. the number of seconds of call time before normal time-based charging starts) is shown in brackets. Values are expressed in €-PPP, including VAT.

The incumbent operators in Belgium, Denmark, Germany, Spain, Italy, Austria and Finland[5] apply a lower call set-up charge for local calls (or a longer "free call time") than for long-distance calls.

The incumbent operators in Belgium, Spain, Italy and Portugal apply higher call set-up charges for international calls than for long-distance calls: around 30% more in Spain and Portugal, almost four times as much in Italy. The incumbent operator in Belgium applies two different call set-up charges for international calls depending on the destination (28% or 70% more than for long-distance call set-up). The incumbent operators in Ireland and Greece do not apply any call set-up charge for international calls.

Six incumbents apply higher set-up charges for calls to mobile network than for calls to fixed network. In some cases the difference is substantial: the charge is double in Denmark, Germany and Portugal, and more than three times as much in France (+220%) and Spain (+269%).

[3] National calls and calls to mobile are charged per minute rather than the normal unit.

[4] The 1999 Teligen's report did wrongly state that Denmark used a unit based system in 1998, and that Austria used per second charging. This was due to a misinterpretation of the tariff information provided by the carriers, where the charging system was not clearly defined.

[5] Sonera.

Chart 2

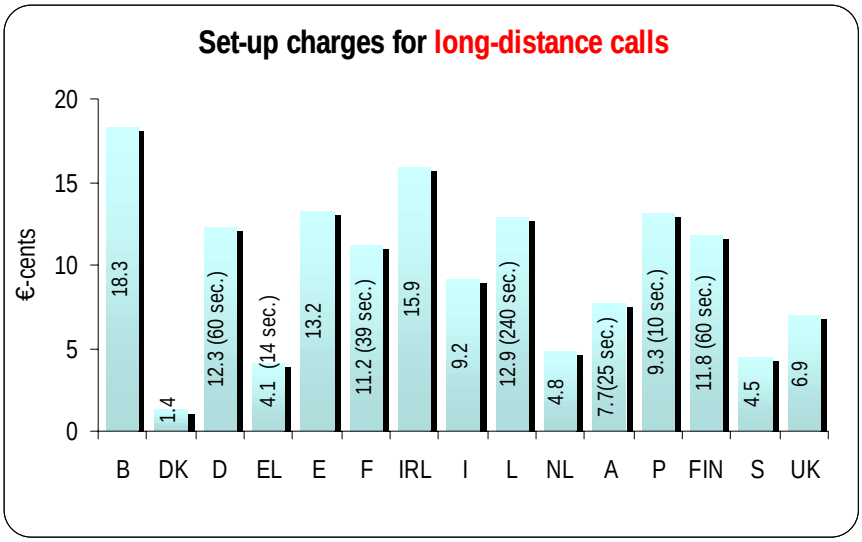
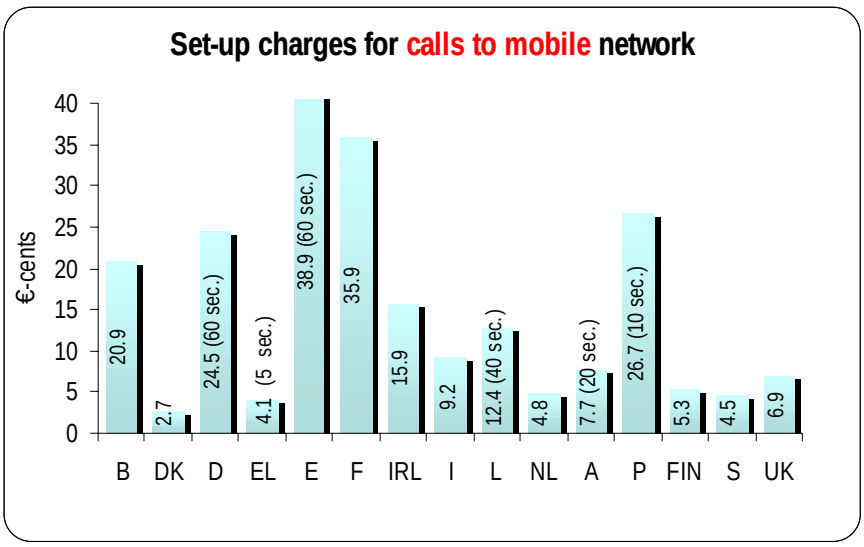


Chart 3



2. MONTHLY RENTAL CHARGED BY THE INCUMBENT OPERATORS

The following charts show the incumbent's monthly line rental charges for residential and business users in August 2000 and the variation in nominal terms in each country since August 1997. In order to reflect the real charges actually paid by users, values are expressed in €-PPP, including VAT for residential users and excluding VAT for business users.

The percentage variations 1997-2000 are calculated as a weighted average of the variations in individual Member States, rather than the variation in EU weighted average values.

The incumbent operators in France, Italy, the Netherlands, Austria, Sweden and the United Kingdom apply different monthly line rental charges for residential and business users. In the other countries the differences between the types of users is due only to the exclusion of VAT for business users.

On average the EU monthly line rental charge for business users (including VAT) is 36% higher than that for residential users: the differences vary from (around) 18% (in France, Netherlands and Austria), to 38% in Sweden, 47% in Italy and 62% in the United Kingdom.

Chart 4

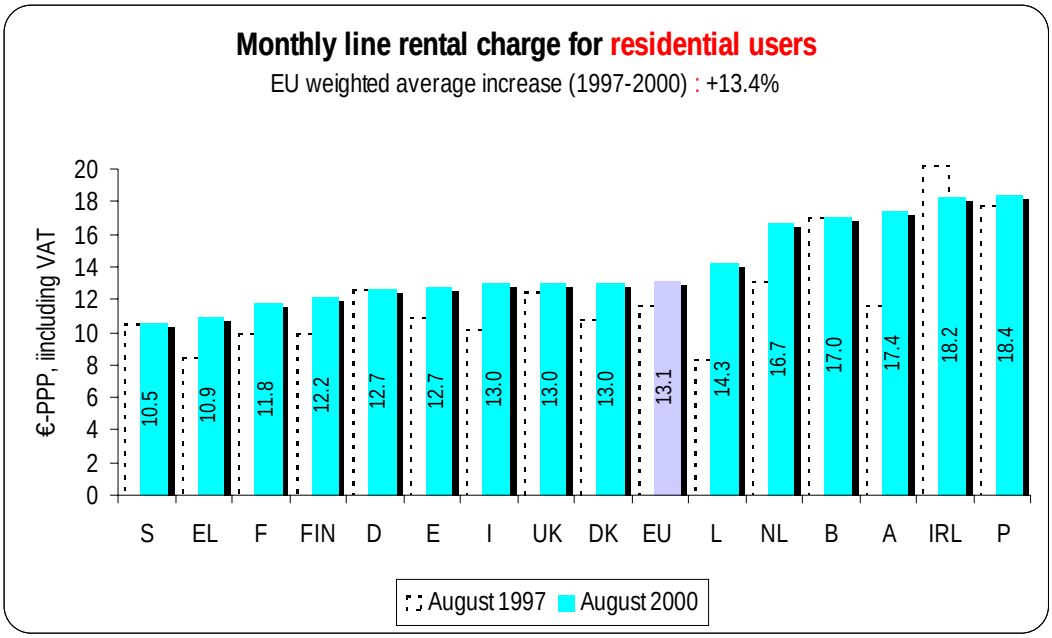
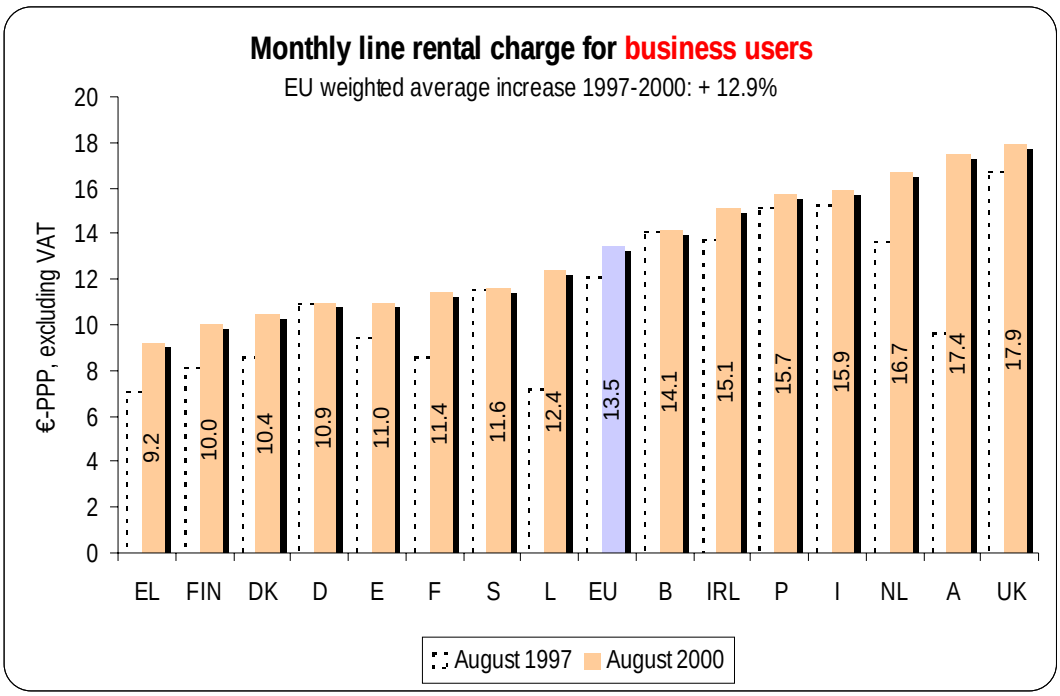


Chart 5



The following charts show the EU weighted average variation in nominal terms of the residential and business monthly line rental charge.

Chart 6

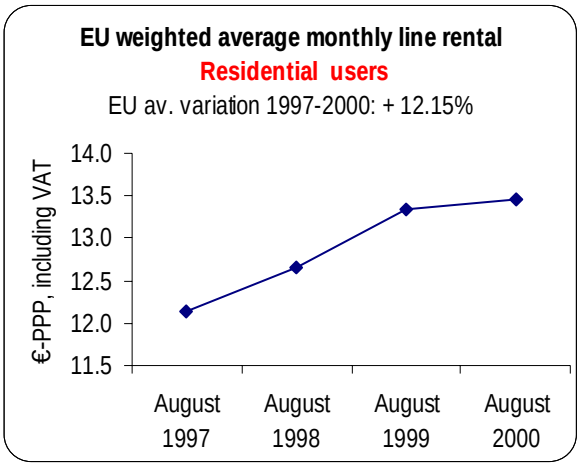
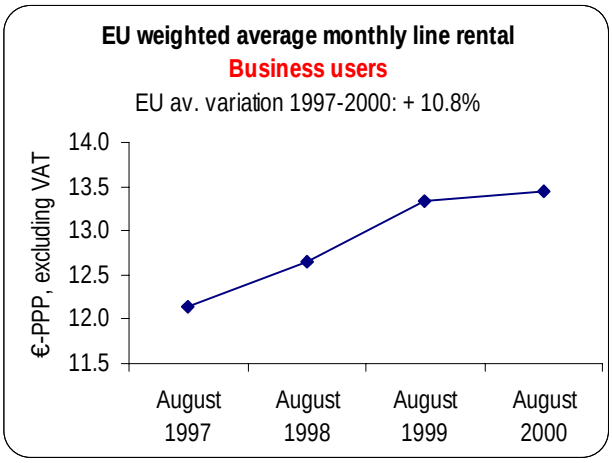


Chart 7



3. AVERAGE MONTHLY EXPENDITURE (call basket)

The figures presented in this section are intended to provide an estimate of the average monthly expenditure of a "standard" European consumer (business and residential). The Basket Methodology for Telecommunications Cost Comparison has been devised by the OECD and accepted in most countries as the most stable and neutral method of comparison[6].

The user is assumed to have a contract for the provision of voice telephony services with the incumbent operator, and to use only this operator for all types of call (local, long-distance, international, calls to mobile). Since consumers are making increasing use of call-by-call carrier selection, in particular for specific highly discounted types of calls (i.e. international and long-distance), the figures given below are purely indicative, and do not necessarily reflect the cheapest solution available.

The charts below show the average monthly expenditure for standard residential and business users as of August 2000, expressed in €-PPP, based on the standard tariffs charged by the incumbent operators (i.e. excluding any discount packages). This means that lower costs can be achieved if the user subscribes to one or more discounted packages.

The basket of calls used to estimate average monthly expenditure is the new "composite OECD basket"[7], which includes not only fixed national calls (as did the old basket), but also fixed international calls and calls to mobile networks.

The OECD residential/business baskets are defined as follows (on an annual basis):

The fixed (i.e. non-recurring) charges include the annual line rental charge plus the charge for the installation of a new line (depreciated over 5 years). Fixed charges for residential users include VAT, while for business users VAT is excluded.

[6] A full description of the methodology can be found in "Performance indicators for public telecommunications operators", ICCP Series No.2.2, OECD 1990.

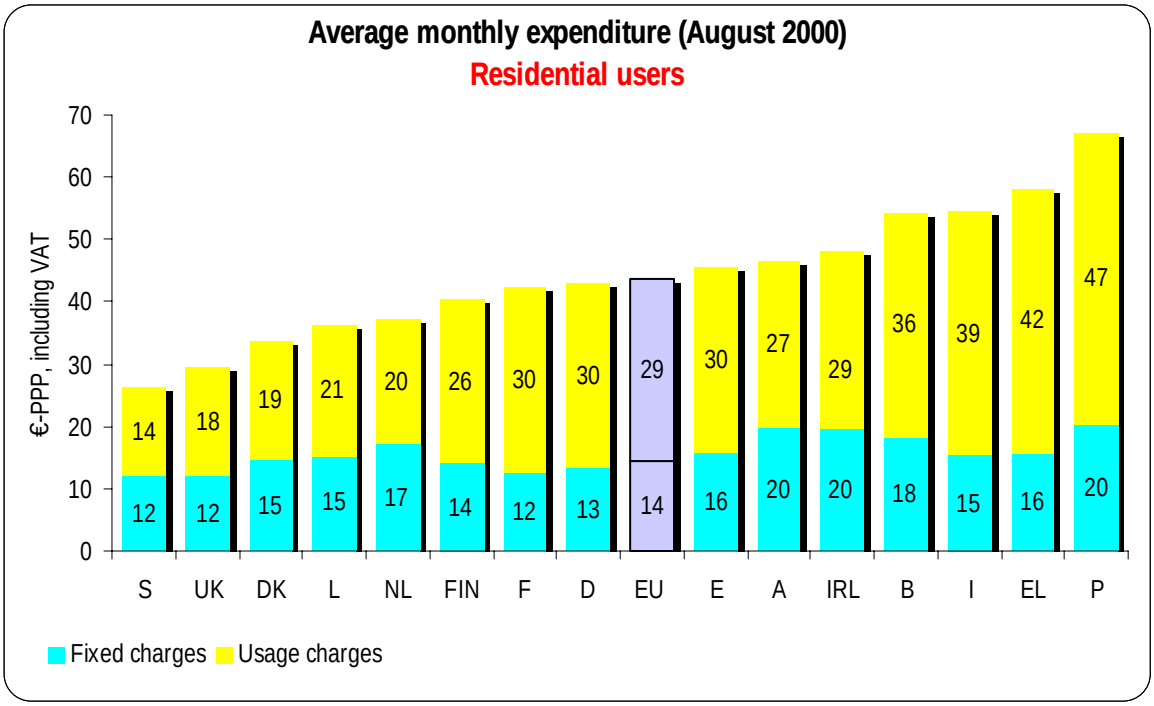
[7] The revised OECD baskets were adopted in May 2000.

The usage charge for residential users refers to a basket of 1 200 national calls to fixed lines, plus 120 calls (with an average duration of 2 minutes) to mobile networks[8], plus 72 international calls[9]. The usage charges for national calls to fixed lines are calculated with a weighted distribution over 14 distances from 3 to 490 km, at representative times of day (4 during the week and 2 at the weekend). The call duration varies from 2.5 to 7 minutes, depending on time and distance. The usage for residential users is weighted towards off-peak hours, and with typically long calls. Only 36% of the calls are within normal business hours; 64% are for distances below 10 km; 9% are for distances above 100 km.

The usage charge for business users refers to a basket of 3 600 national calls to fixed lines plus 360 calls (with an average call duration of 2 minutes) to mobile networks[8], plus 216 international calls[9]. The usage charges for national calls to fixed lines are calculated with a weighted distribution over 14 distances from 3 to 490 km, at representative times of day (4 during the week and 2 at the weekend), and with a call duration of 3.5 minutes regardless of time of day and distance. The usage for business users is weighted towards business hours, and with typically short calls. Over 85% of the calls are within normal business hours; 64% are for distances below 10km; 12.5% are for distances above 100 km.

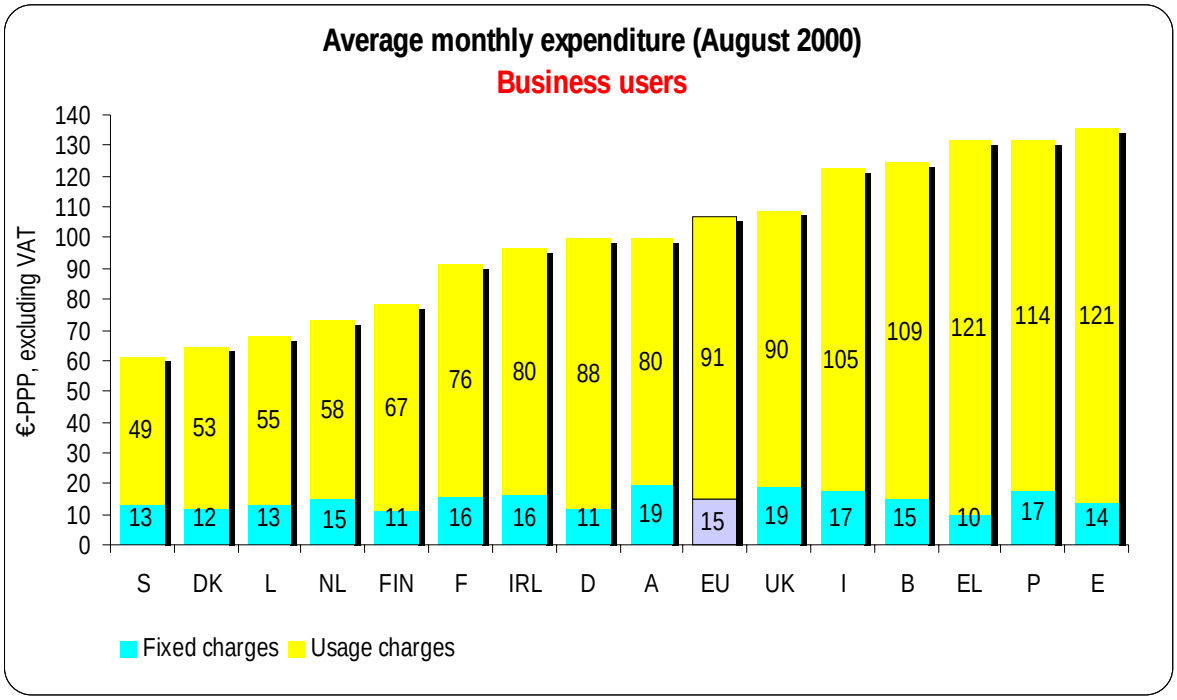
In the case of Luxembourg, local calls cover the entire country.

Chart 8



[8] Representing 10% of the number of calls to fixed lines.
[9] Representing 6% of the number of calls to fixed lines.

Chart 9



4. FIXED NATIONAL CALLS

4.1. PRICES CHARGED BY THE INCUMBENT OPERATORS FOR INDIVIDUAL FIXED NATIONAL CALLS

This section shows the prices charged by the incumbent operators for individual fixed calls (the same call prices apply to business and residential users). Where the incumbent operator uses a unit-based charging system (see Chart 1), the price of calls of different durations and/or distances may in some cases be identical, where both calls are charged the same number of units.

Prices refer to peak hours (weekdays 11.00) and are expressed in €-PPP including VAT. Except where otherwise specified, the figures refer to August 2000.

Prices are indicated for three-minute and 10-minute calls over two distances: 3 km (equivalent to a local call) and 200 km (equivalent to a long-distance call). In several countries the tariff changes at exactly one of these distances: in these cases, the rates for the lower distance band are used.

The price of a three-minute call is more affected by the magnitude of the call set-up charge than the price of a 10-minute call.

Where two or more tariff packages are available (i.e. Austria and the Netherlands), the prices refer to the basic residential package. In all other cases the prices refer to the standard tariff (cheaper tariffs may be available under discounted packages).

The EU average value is the average of the EU countries weighted according to population in 1999. The percentage variations 1997-2000 are calculated as a weighted average of the variations in the individual Member States, rather than as the variation in EU weighted average values.

Chart 10

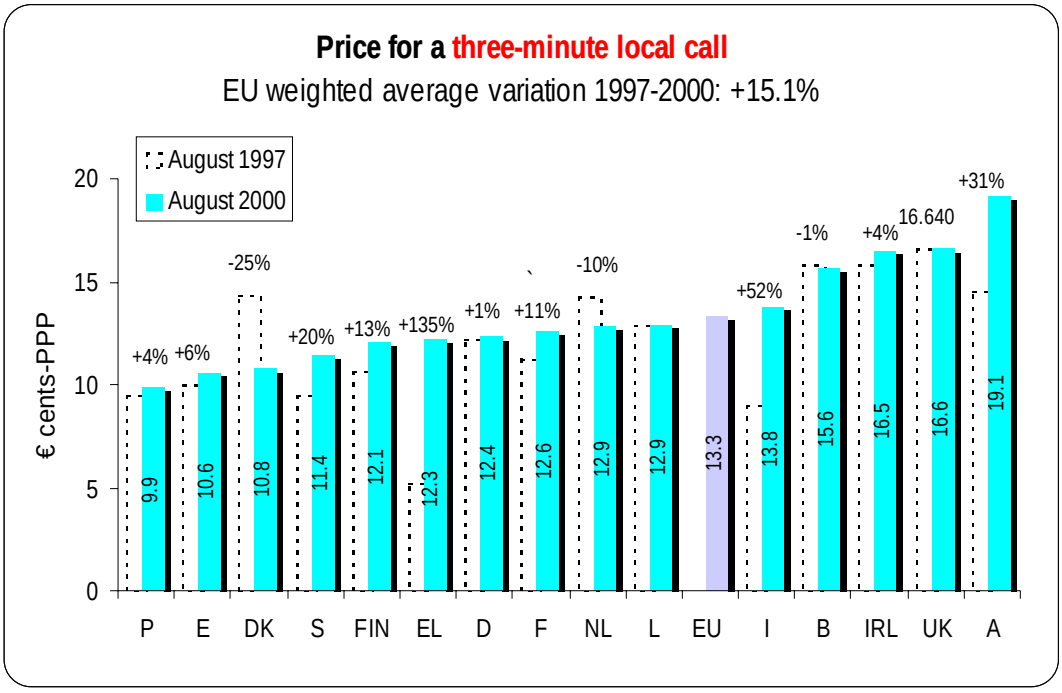


Chart 11

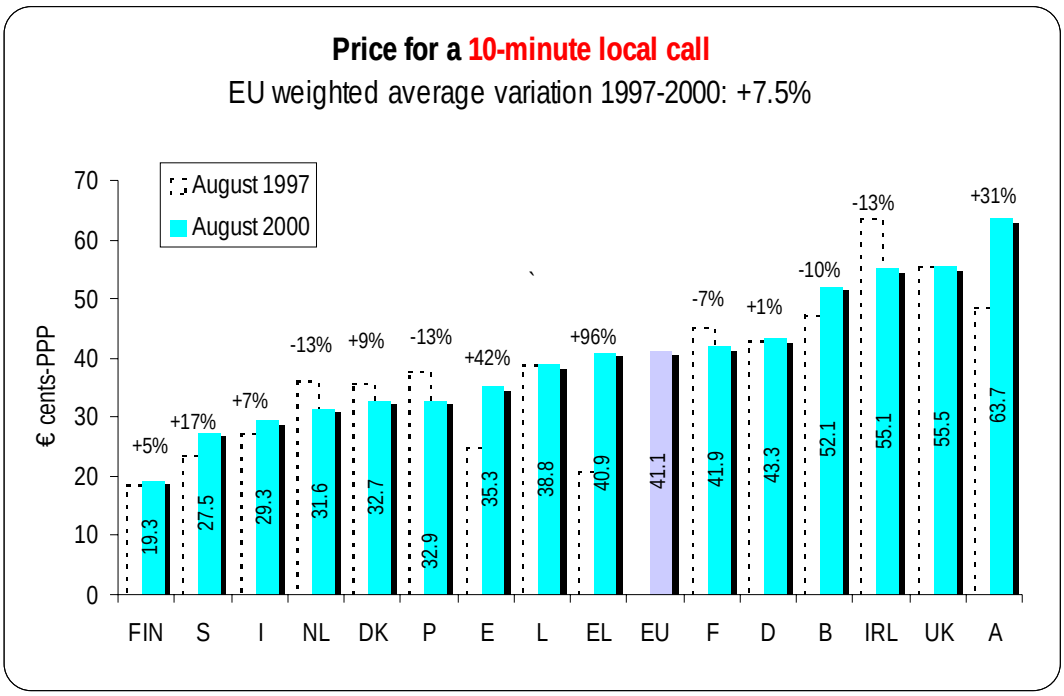


Chart 12

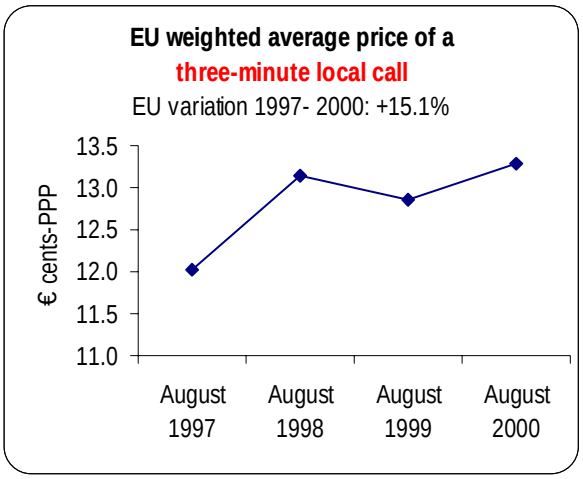


Chart 13

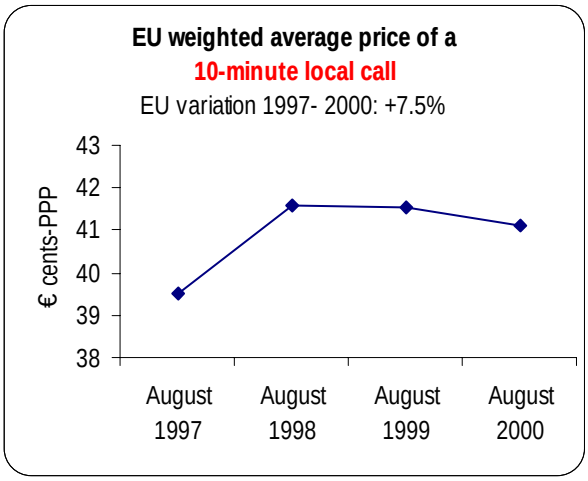


Chart 14

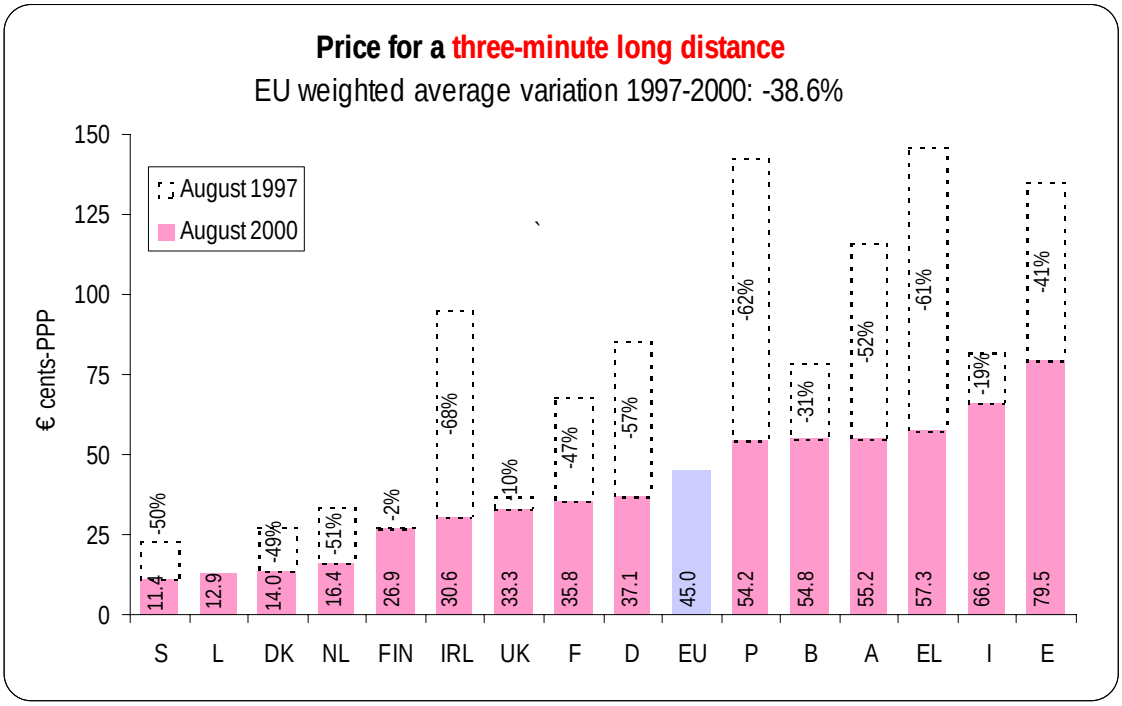


Chart 15

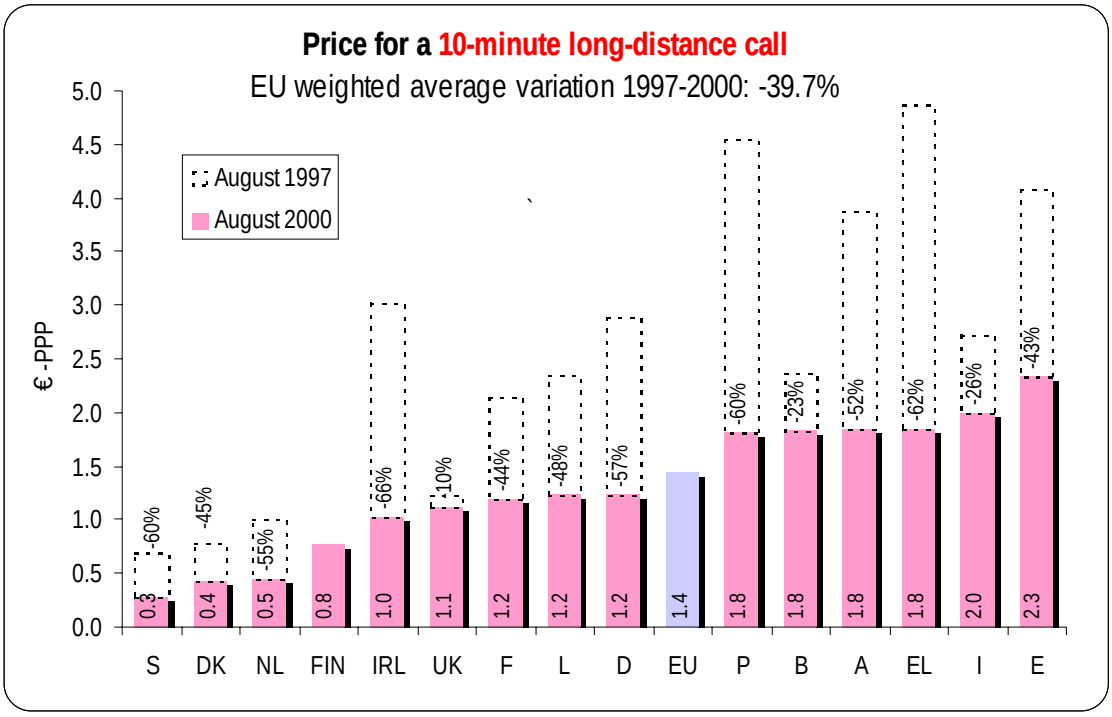


Chart 16

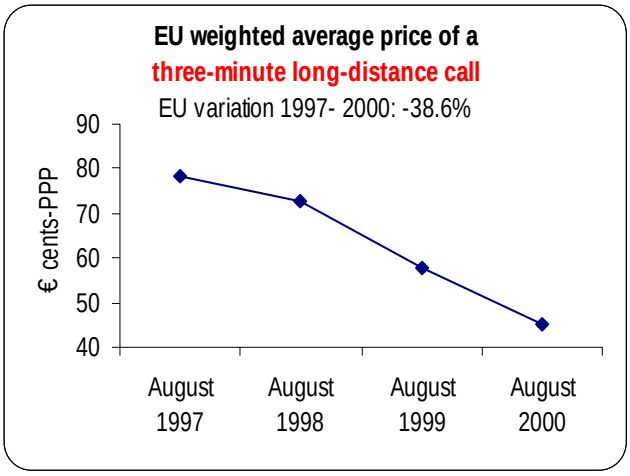
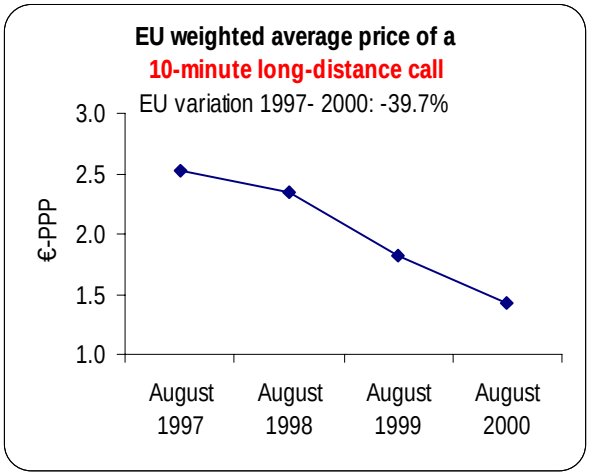


Chart 17



4.2. TREND OF THE BASKET FOR FIXED NATIONAL CALLS

The following charts show the variation in the monthly expenditure of residential and business users on fixed national calls in nominal terms from August 1999 to August 2000 (in order to maintain consistency over time, the "old" OECD basket, which includes only fixed national calls, is used).

The variation in the international basket is shown in section 5.

Chart 18

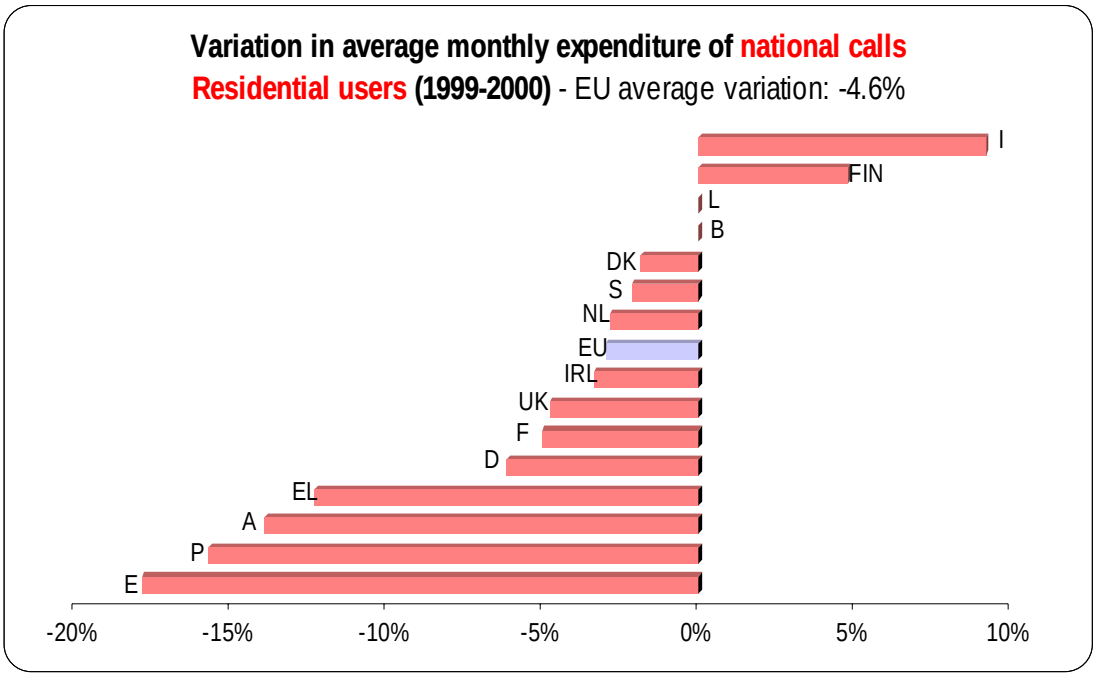


Chart 19

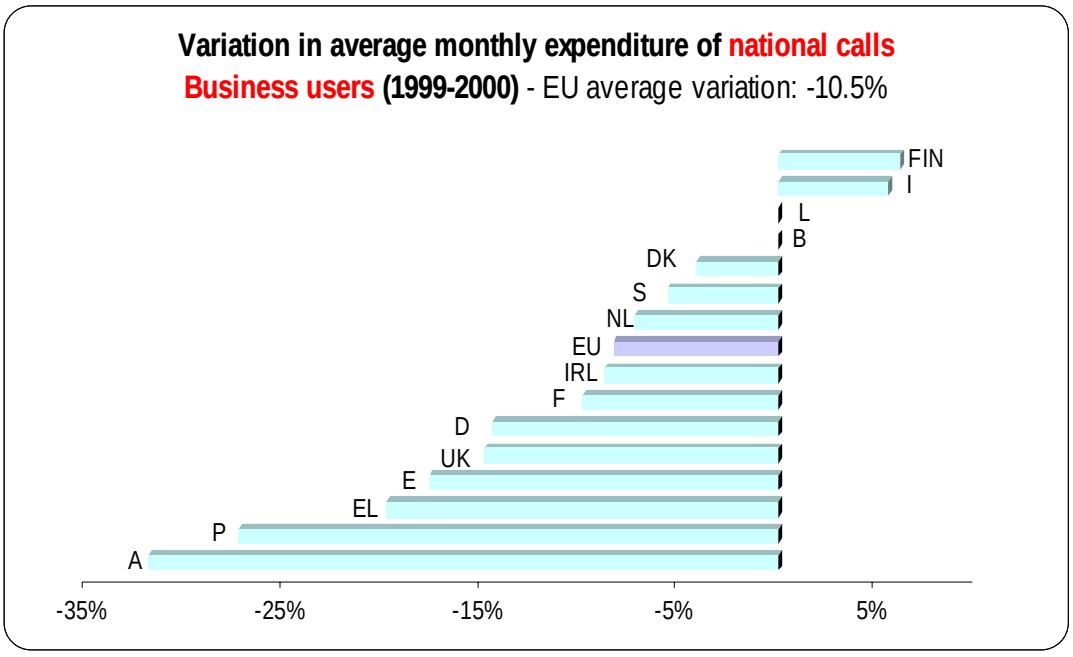


Chart 20

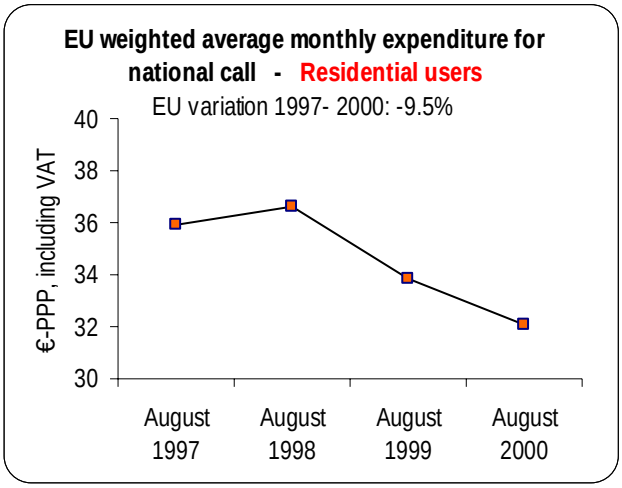
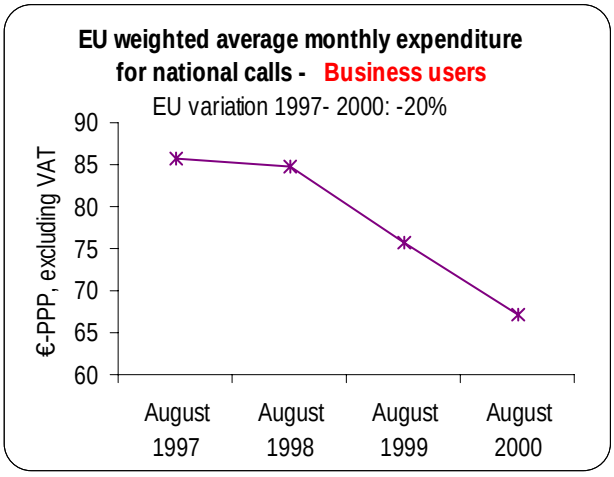


Chart 21



5. FIXED INTERNATIONAL CALLS

The following charts show the prices of the international call basket (an estimate of the average cost in each country of an international call) and the price of a 10-minute call to specified destinations (within Europe, to Japan and to the USA).

5.1. PRICE OF AN AVERAGE FIXED INTERNATIONAL CALL (INTERNATIONAL CALL BASKET)

The basket of international calls for each country indicates the weighted average price of a three-minute call during peak hours and a five-minute call during off-peak hours from the originating country to each other OECD country. The basket uses the zoned weighting method, which divides the OECD members into three zones: Europe, North America and Asia/Pacific. Each destination is weighted according to its position relative to the country of origin: calls to a country in the same zone have a 50% weighting, calls to a country in the adjacent zone have a 30% weighting, and calls to a country in the distant zone have a 20% weighting. The prices refer to the standard tariff packages, and not to any cheaper tariffs which may be available under discounted packages.

The residential basket includes VAT. Call charges are weighted between peak and off-peak hours: 25% for peak hours and 75% for off-peak hours. The business basket excludes VAT. Call charges are weighted 75% for peak hours and 25% for off-peak hours. The average price of an international call is lower for business users than for residential users because of the heavier weighting given to three-minute peak-hour calls, which are on average cheaper than five-minute off-peak calls, and because VAT is excluded for business users but included for residential users.

Values are expressed in €-PPP and give the position in August 2000.

The variations in nominal terms since August 1997 are also shown. The EU percentage variations over time are calculated as a weighted average of the variations in individual Member States, rather than as the variation in the EU weighted average value.

Chart 22

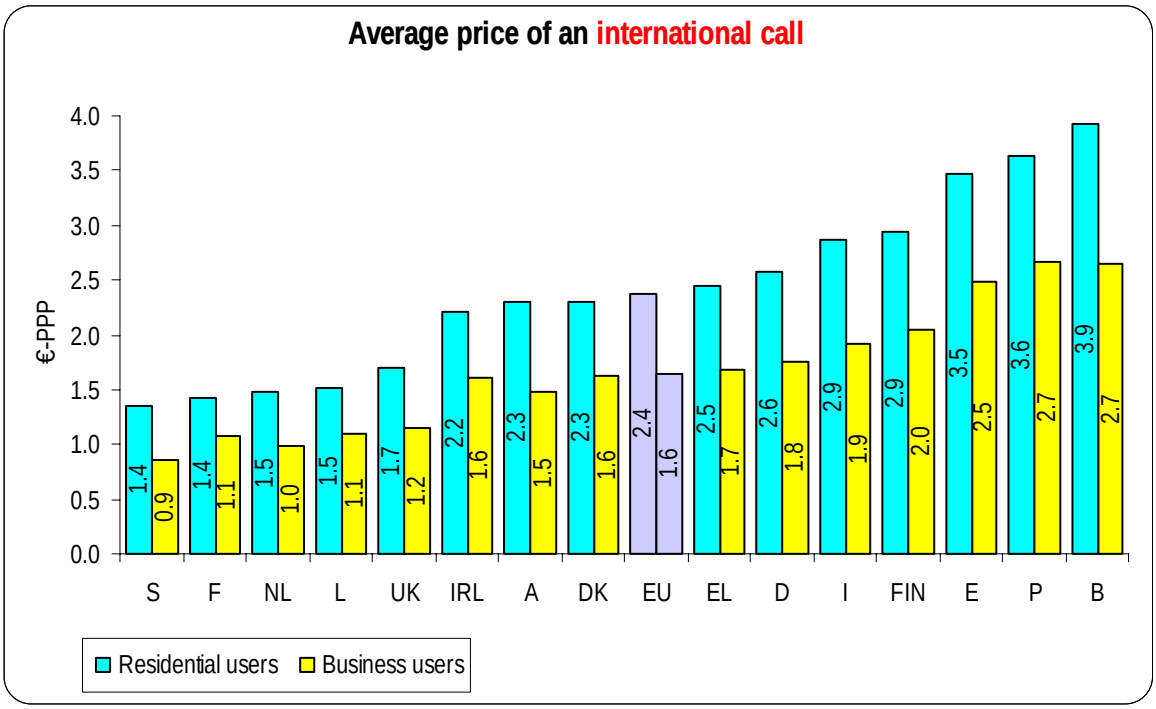


Chart 23

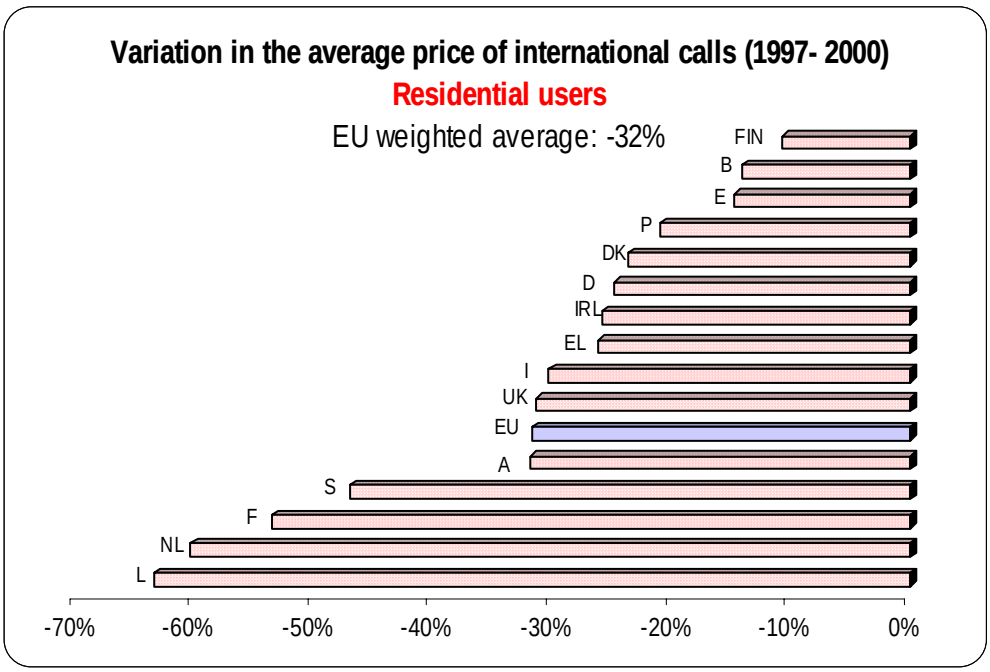


Chart 24

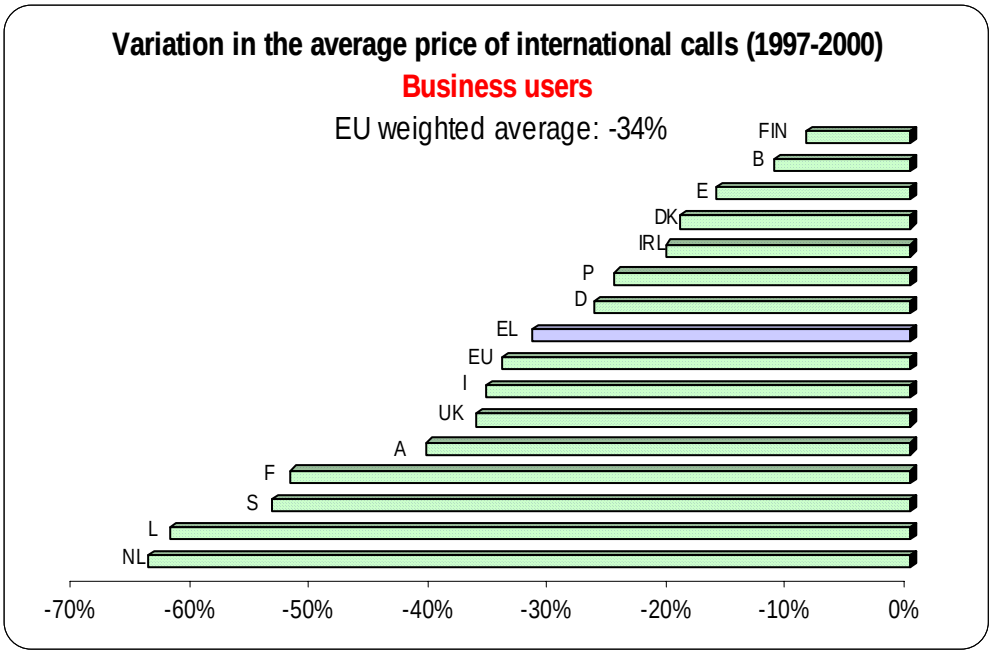
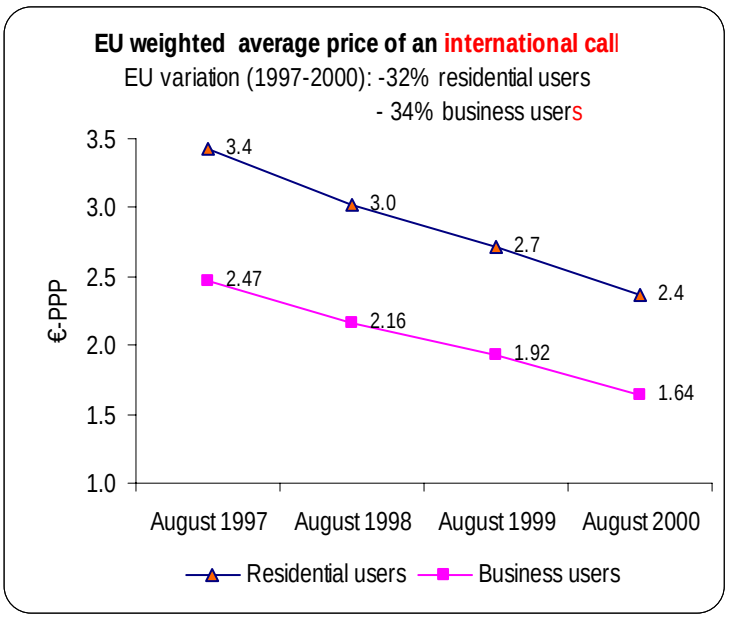


Chart 25



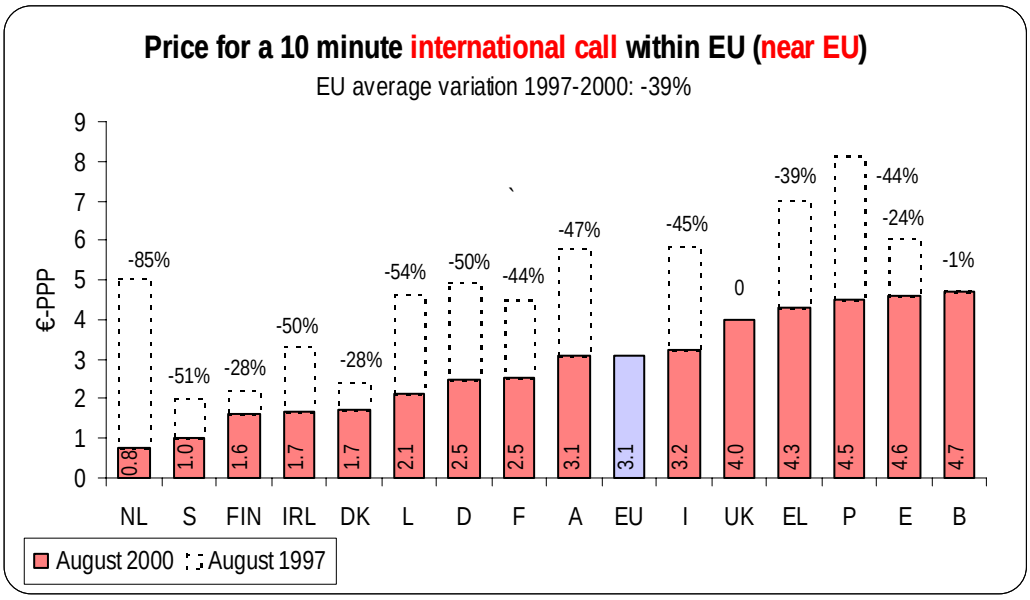
5.2. PRICES OF INDIVIDUAL INTERNATIONAL CALLS TO EUROPE, JAPAN AND THE USA

The following two charts show the prices of a 10-minute international call (including VAT) during peak hours (weekday 11.00) to four different destinations: neighbouring country[10] (near EU), more distance country[11] (far EU), Japan and the USA.

Figures are expressed in €-PPP at August 2000 values, including VAT; they refer to the European incumbent operators, the EU weighted average, DKK for Japan and AT&T for USA.

Where possible, price variations since August 1997 are also included.

Chart 26



[10] The neighbouring countries are defined as: France for Belgium, Germany and the United Kingdom; Sweden for Denmark and Finland; Italy for Greece (and *viceversa*); Portugal for Spain (and *viceversa*); the United Kingdom for Ireland, USA and Japan; Germany for Luxembourg, The Netherlands and Austria; Belgium for France.

[11] The more distant countries are defined as: Greece for Belgium, Denmark, Germany, France, Ireland, Luxembourg, The Netherlands, Austria, Finland, Sweden, the United Kingdom, USA and Japan; Denmark for Greece, Spain, Italy and Portugal.

Chart 27

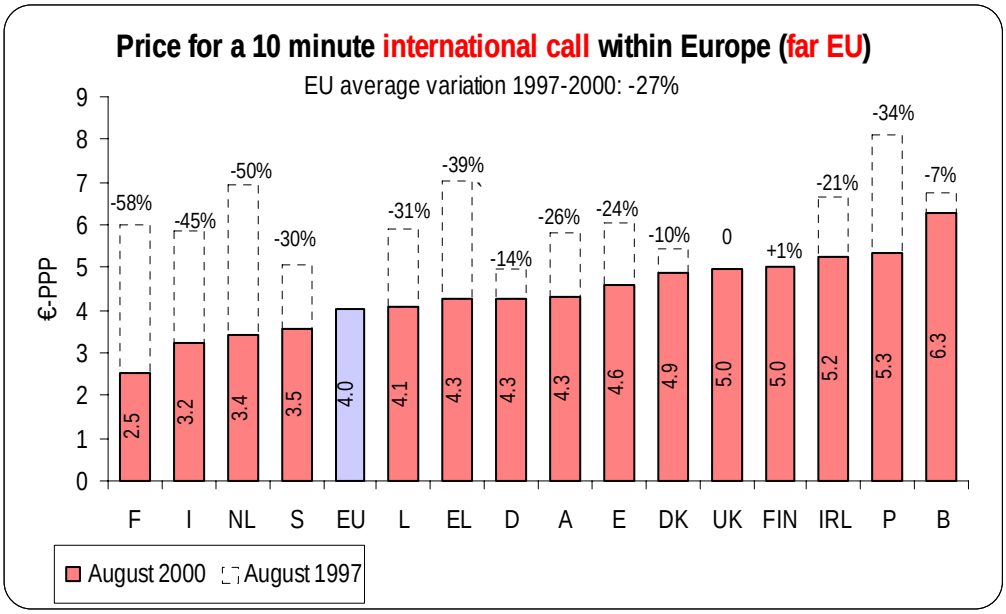


Chart 28

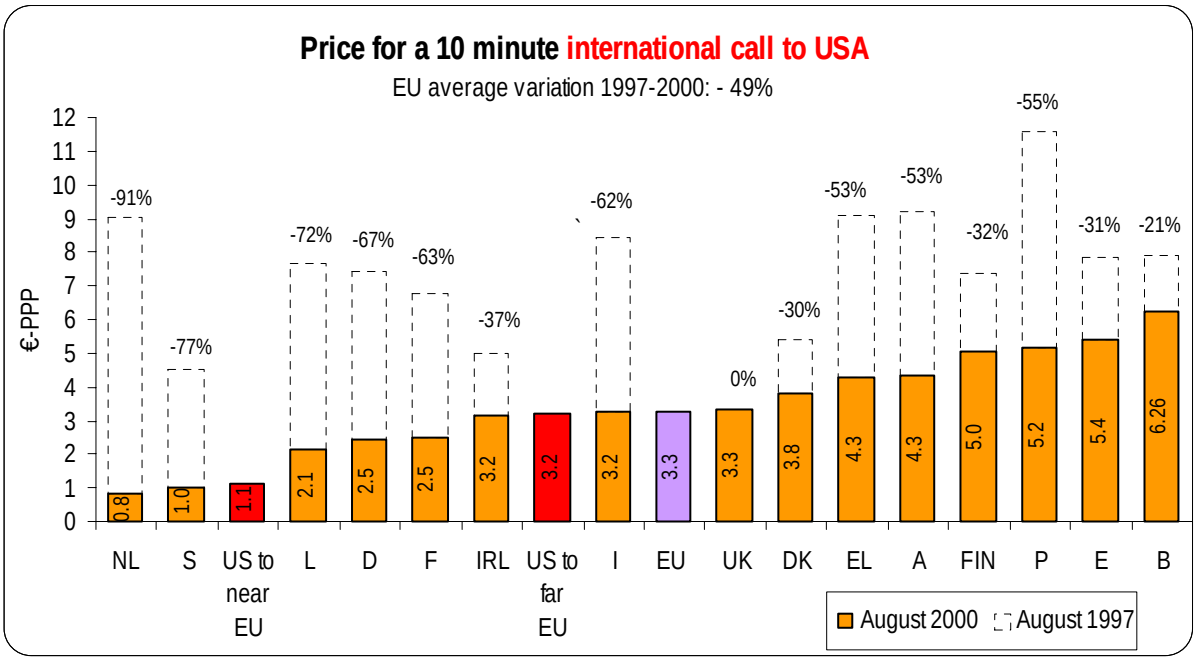
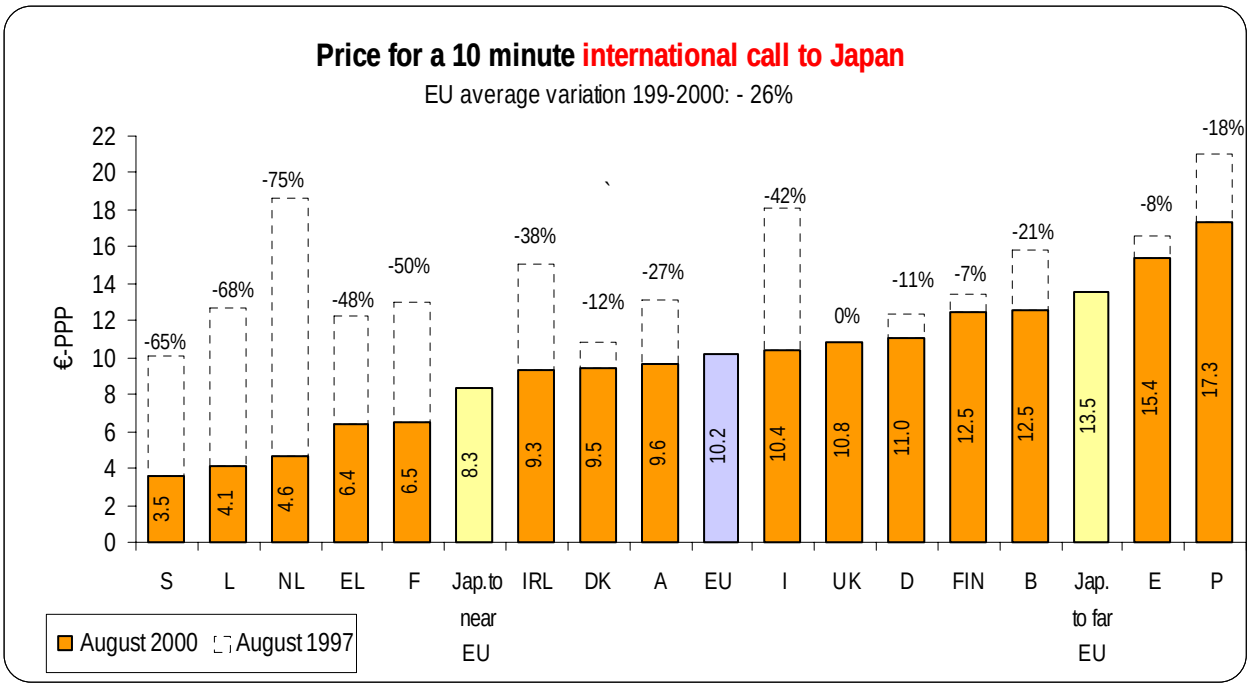


Chart 29



6. COMPARISON BETWEEN THE EU, JAPAN AND THE USA

This section compares the prices charged by the incumbent operators in Japan and the EU and by leading operators in the USA for public voice telephony services.

For the EU, the prices charged by the cheapest and the most expensive incumbent operators are shown as well as the EU weighted average[12].

For Japan and the USA, the prices quoted for national and international calls relate to different operators, as there is a split market where different operators have traditionally been allowed into the two market segments.

For the USA, the prices for national calls are those charged by Ninex/Bell Atlantic/Verizon (in New York city)[13] and Pacific Bell (in the State of California), and the prices for international calls are those charged by AT&T. Since prices vary substantially across the country, these tariffs are merely examples and are not necessarily typical (for example, many operators offer "free" local calls, depending on the tariff package chosen by the subscribers).

For Japan, the national call prices are those charged by NTT and the international call prices are those charged by KDD

Prices include VAT and are those applying on August 2000.

[12] Average of the prices charged by the incumbent operators in each Member State weighted by population of the Member States in 1999.

[13] The operator has changed name twice during the past four years. Prices for the same operator may vary depending on the specific user location in the area covered by the local operator. We have taken the prices for New York city.

Unlike in previous reports, the euro exchange rate is expressed in terms of purchasing power parities (€-PPP), using the official EURO rates applying on August 2000 (see appendix for more details on € and €-PPP exchange rates), and weighted rather than simple averages are used. These figures are therefore not comparable with the figures given in previous reports.

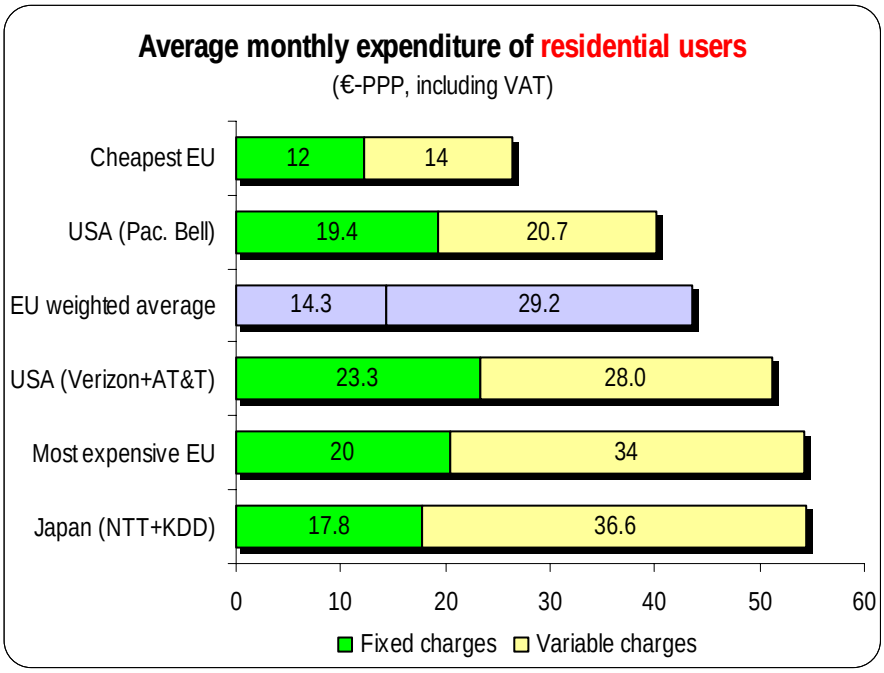
As the cost of living is much higher in Japan than in Europe, there is a substantial difference (-43%) between prices expressed in € and in €-PPP (for the USA the difference is around 8%). If the prices were expressed in €, the difference between prices in Europe and in the USA would be lower, and the prices in Japan would generally be higher than the prices in Europe.

6.1. COMPARISON OF AVERAGE MONTHLY EXPENDITURE (CALL BASKET)

The following charts compare the average monthly expenditure of residential and business users in the EU, Japan and the USA.

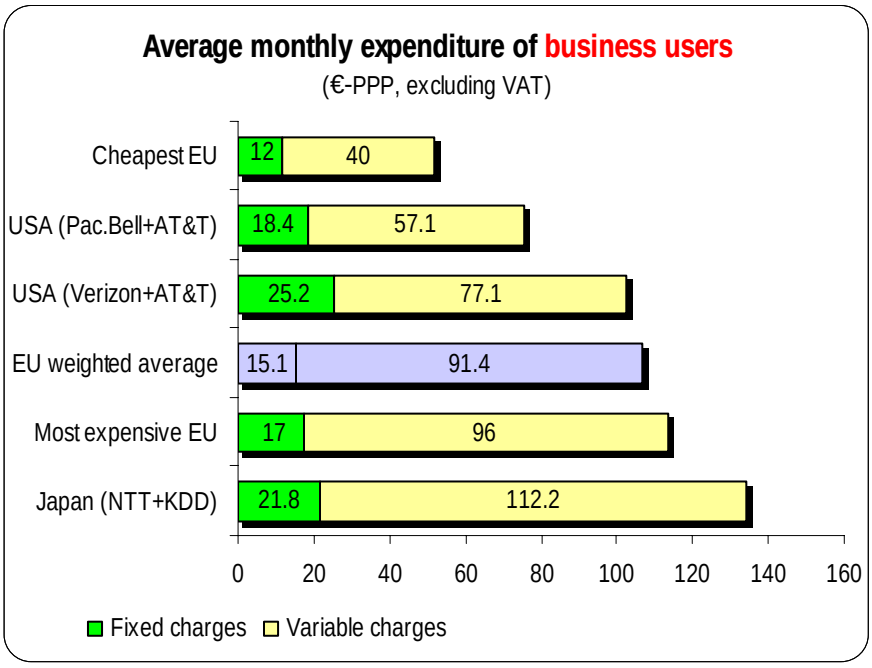
The fixed charges include the annual line rental charge plus the charge for new line installation (depreciated over 5 years). The usage charge refers to a basket[14] of calls of all types from the operators' fixed network (national, international, calls to mobile) (see section 3 for more details on the definition of call basket).

Chart 30



[14] 1 392 calls for residential users and 4 086 calls for business users.

Chart 31



6.2. COMPARISON OF PRICES OF AN INDIVIDUAL NATIONAL CALL

The following charts compare the prices charged by the incumbent operators in Japan (NTT) and the EU and by a leading operator in the USA (Verizon) for a 3-, 5- and 10-minute national call during peak hours (weekdays 11.00).

The longer the call, the greater the difference between the EU price and the US price: +10% for a 3-minute call, +87% for a 5-minute call, +249% for a 10-minute call. This does not apply to long-distance calls, where the price difference is around 160% irrespective of the call duration.

In Japan, local calls (expressed in €-PPP) are cheaper than in the EU, but long-distance calls are around 20% more expensive. The price difference for local calls falls as the call duration increases: prices are 116% higher in the EU than in Japan for a 3-minute call, 75% higher for a 5-minute call, and 63% higher for a 10-minute call.

Chart 32

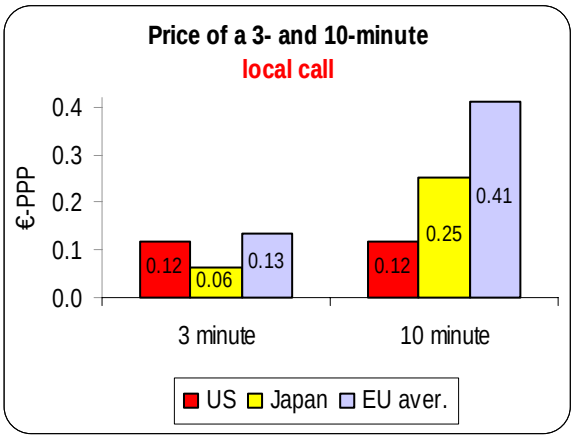


Chart 33

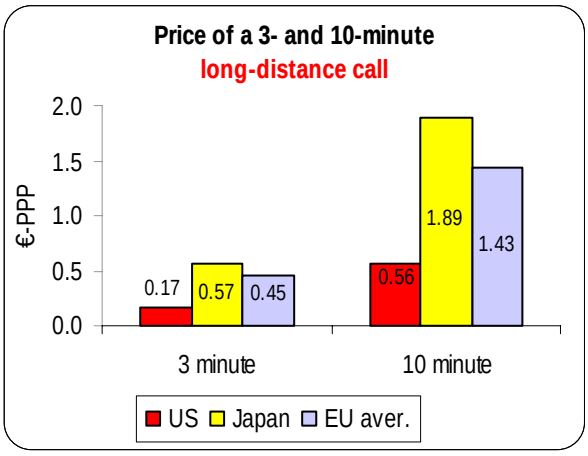


Chart 34

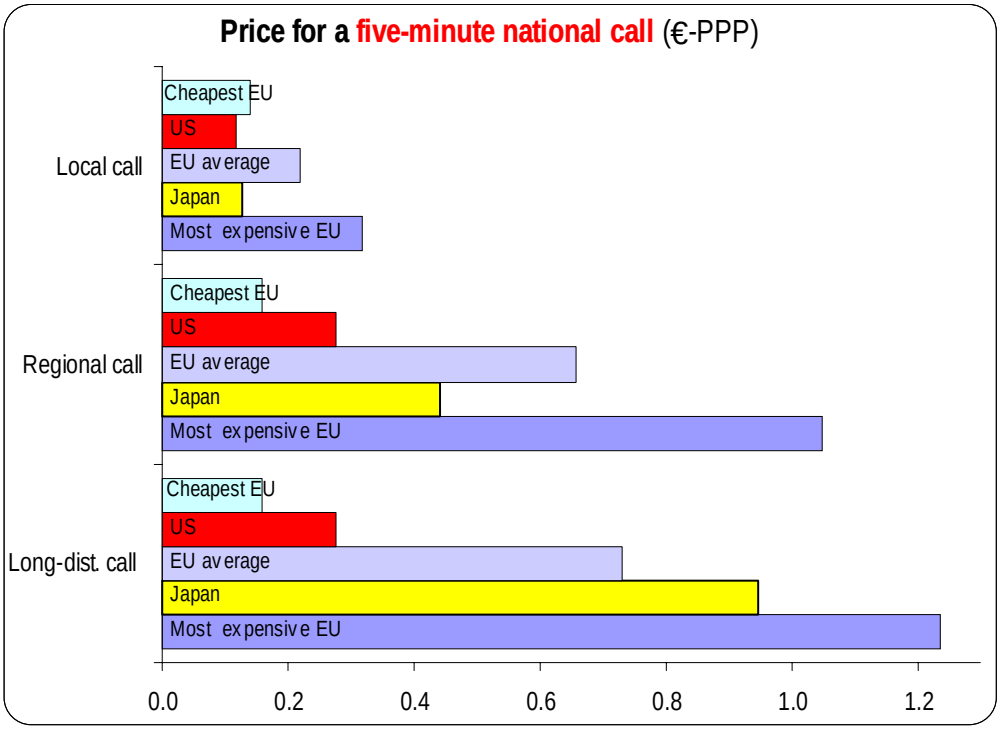
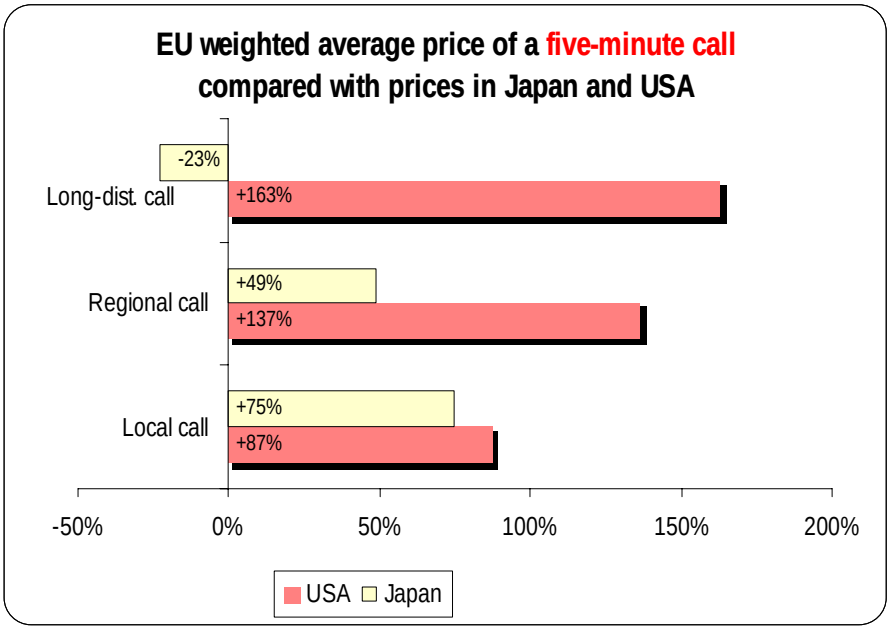


Chart 35



6.3. COMPARISON OF A 10-MINUTE INTERNATIONAL CALL TO USA AND JAPAN

The following charts show the price of a 10-minute international call (including VAT) during peak hours to Japan and USA and *viceversa*.

Figures are expressed in €-PPP at August 2000 value; they refer to the European cheapest and most expensive incumbent operators, the EU weighted average, DKK for Japan and AT&T for USA.

For Japan and the USA, "near EU country" is defined as the United Kingdom, and "far EU country" as Greece.

Chart 36

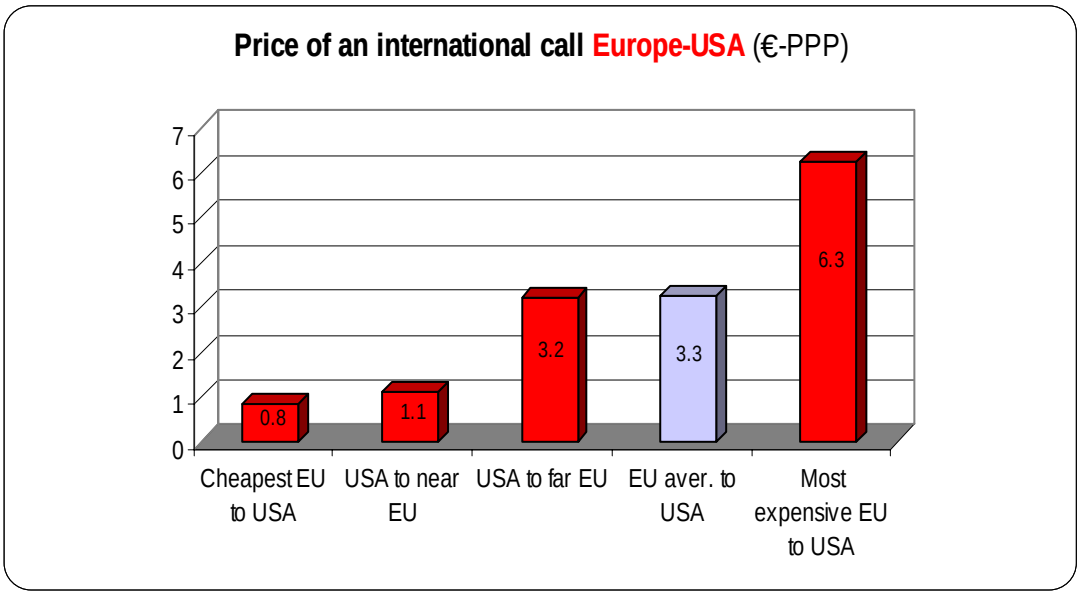
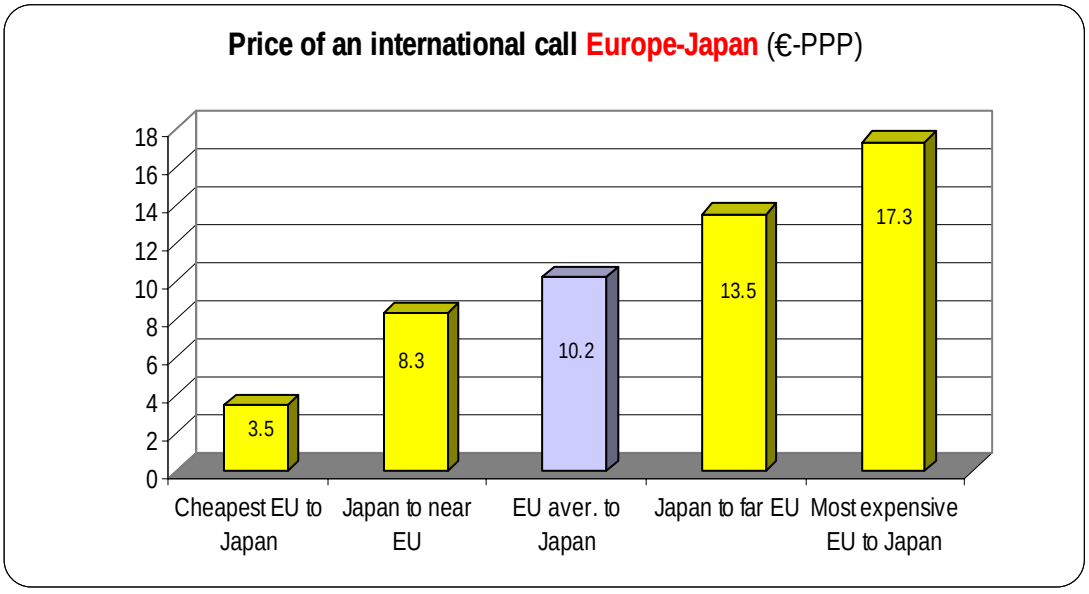


Chart 37



LEASED LINES

This section contains an overview of prices charged by incumbent operators in each Member State for national and international leased line services as of 1 August 2000. Price developments are also analysed over the period August 1997-2000. For high speed leased lines, only developments for the period August 1999-2000 are considered.

The figures and information are taken from a study carried out by Teligen Foundation for the Commission. The data collected are those for standard retail prices charged by incumbent operators in each country.

1. INCUMBENTS' NATIONAL LEASED LINES

In the case of national leased line services, three distances are covered: 2 km (local circuits), 50 km and 200 km. 50 km and 200 km lines include a 2 km circuit tail at both ends. This means that the long distance part of the circuit will be 46 km and 196 km respectively.

Furthermore, 4 types of digital circuit are considered: digital 64 Kbit/s, 2 Mbit/s, 34 Mbit/s and 155 Mbit/s. As not all carriers publish prices for all bitrates, information on all countries is not always available. This is especially the case for higher bitrates.

The following charts show the price levels and developments for the 12 combinations.

Where possible, comparisons are made between the EU average, USA and Japan.

The following should be noted:

- All charges are in euro per year, VAT excluded. See the "Appendix on exchange rates" for details on euro exchange rates used herein.
- When different prices apply according to geographical location of the leased line, standard prices chosen for this analysis are those for circuits connecting reasonably large towns. In particular, the following tariffs are considered: for Austria, the "N-Tariff"; for Sweden and Finland, the Green tariffs; for the UK, the tariffs for circuits with one end outside the Central London Zone; for France, in the case of 34 and 155 Mbit/s, the tariffs for circuits with one end in zone A, as defined by France Telecom.
- Finland is not included in the analysis of 64 Kbit/s circuits, because since 1998 Sonera does not publish the prices for full 64 Kbit/s services.
- Prices refer to basic services and only unstructured circuits are considered for 2 Mbit/s services.
- Prices used are standard prices, excluding any discounts, unless specified.
- The expression "EU average" refers to the simple, non-weighted average across EU countries.
- The EU average variation represents the simple, non-weighted average of national variations.
- For the USA, the prices of Nynex/Verizon (New York) and Pacific Bell (California) have been used. The prices refer to intra-LATA intra- State circuits. It should be noted that the bitrates of those services in the USA are different, so that 56 Kbit/s are taken instead of 64 Kbit/s, 1.5 Mbit/s instead of 2 Mbit/s and 43 Mbit/s instead of 34 Mbit/s.

1.1. NATIONAL LEASED LINE PRICES AS OF 1 AUGUST 2000

Please note the corrigendum for A and, consequently, EU averages in chart 1.

1.1.1. 64 Kbit/s

USA prices refer to 56 Kbit/s lines.

Chart 1

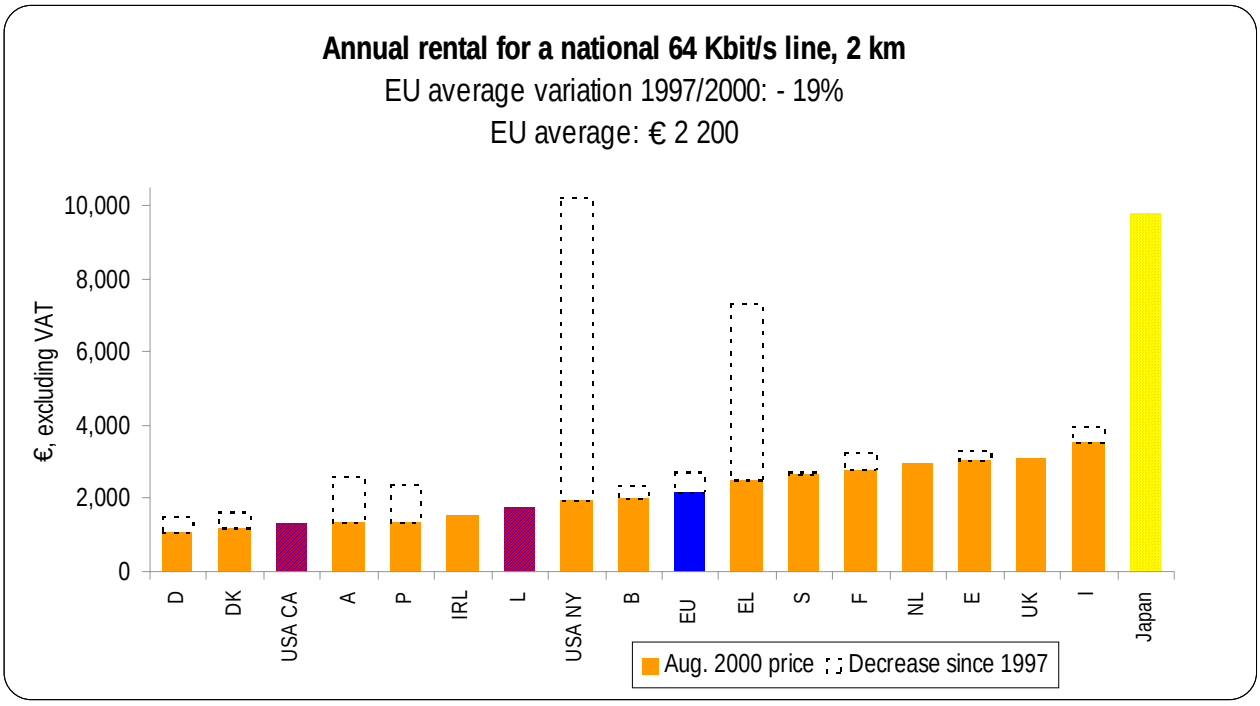


Chart 2

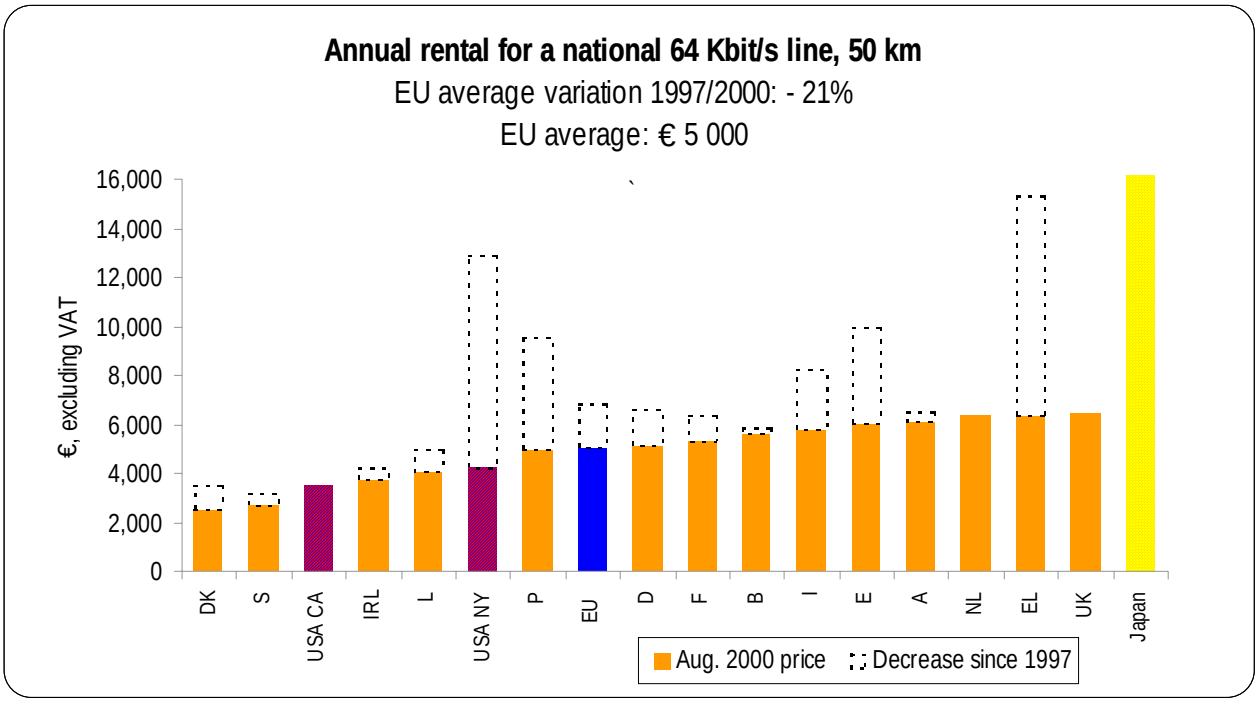


Chart 3

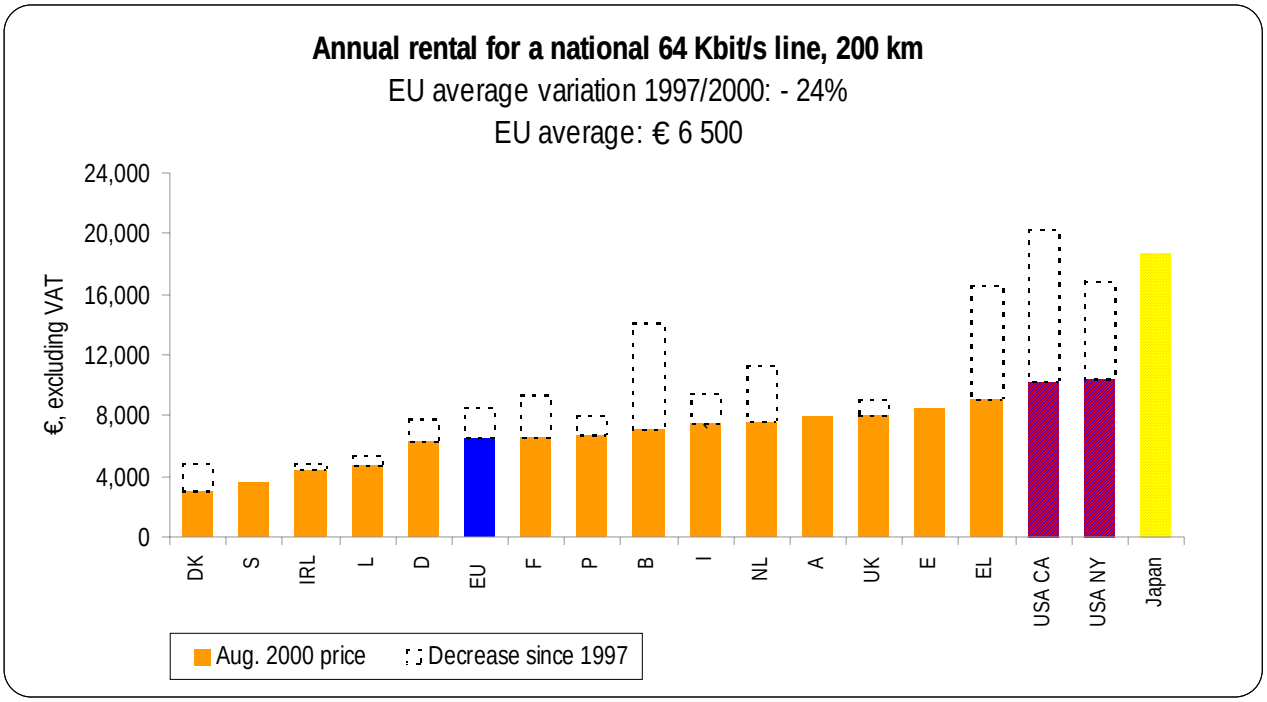
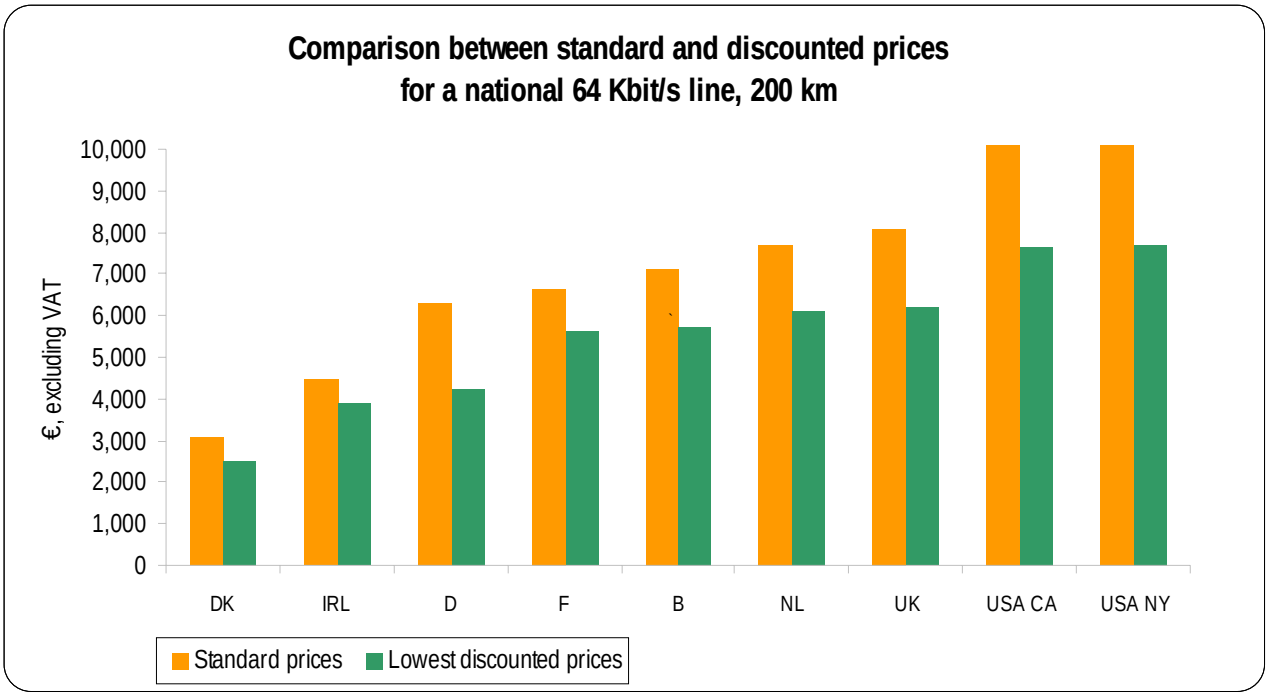


Chart 4



Information on discounts applied by the incumbent operators in the remaining countries is not available.

It should be born in mind, that besides the discounts outlined in the charts, the leased line operators might apply additional discounts on a case-by-case basis.

1.1.2. 2 Mbit/s

USA prices refer to 1.5 Mbit/s lines.

Chart 5

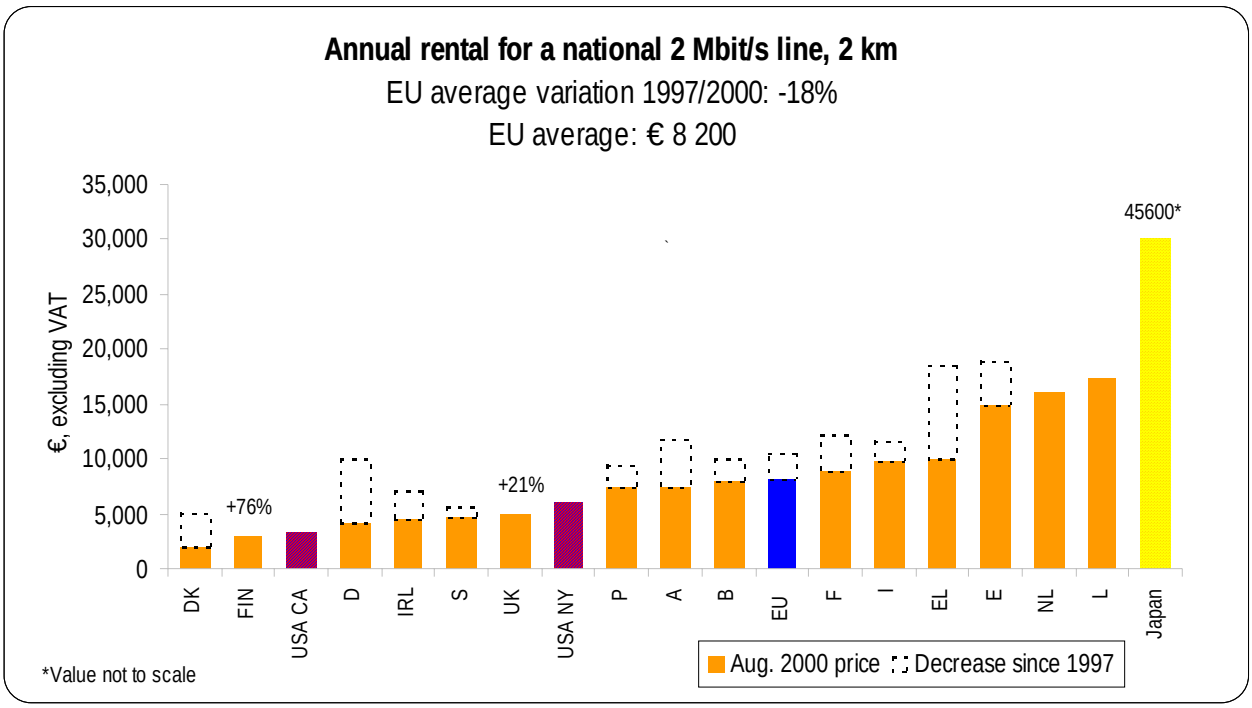


Chart 6

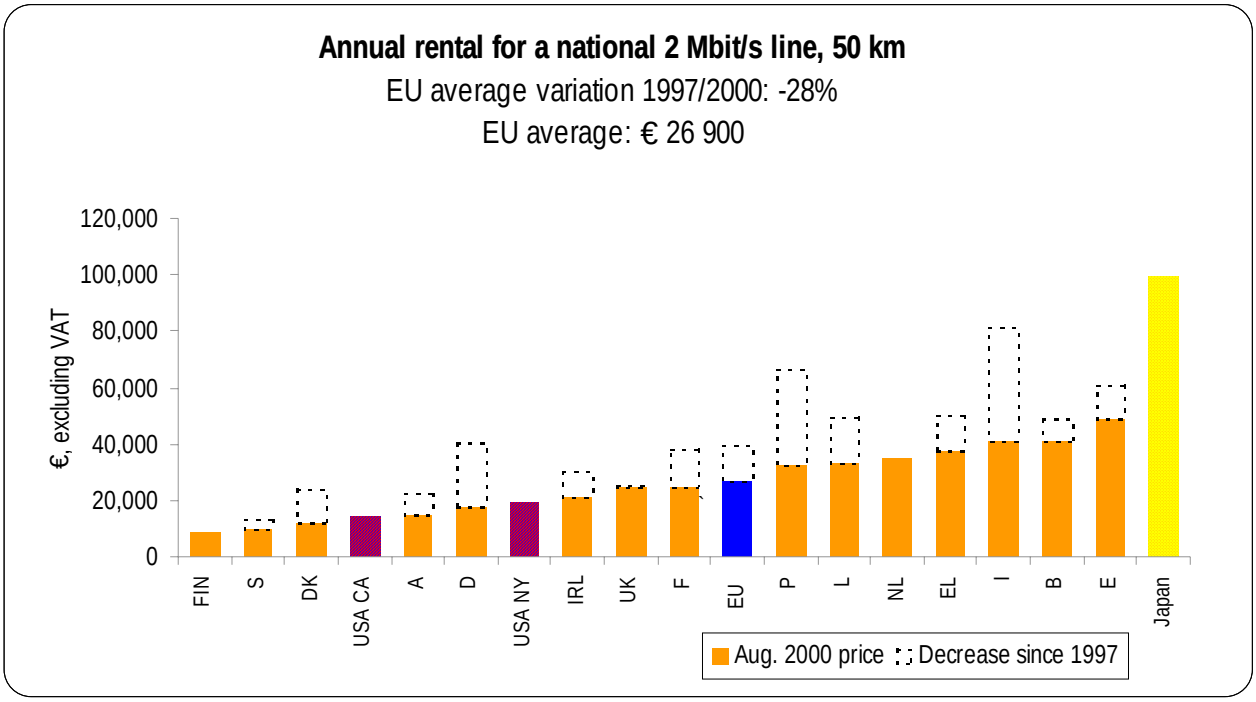


Chart 7

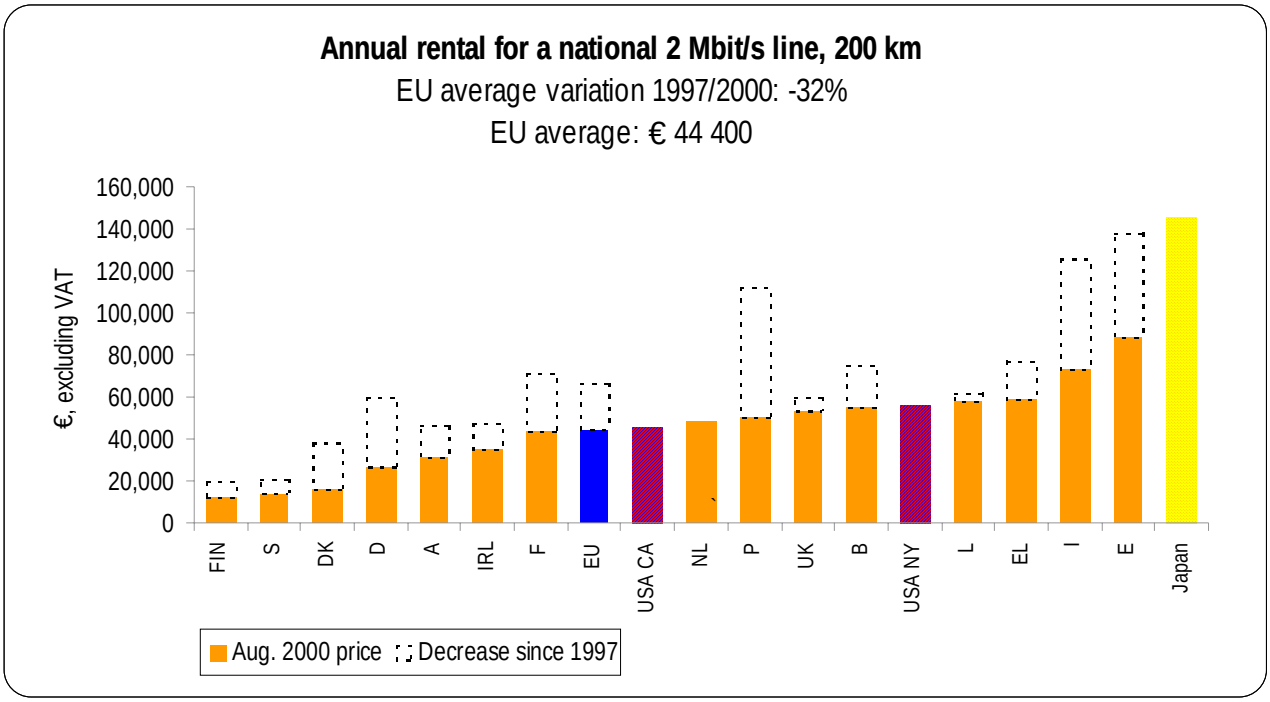
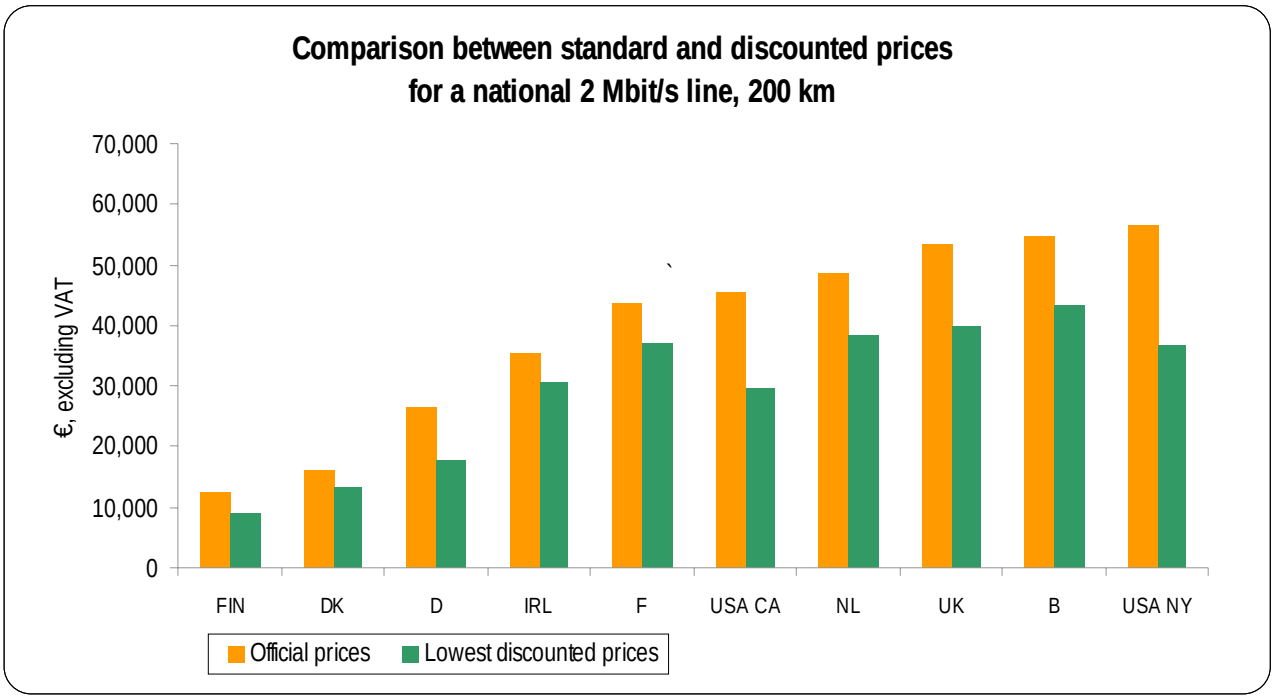


Chart 8



Information on discounts applied by the incumbent operators in the remaining countries is not available.

1.1.3. 34 and 155 Mbit/s

Chart 9

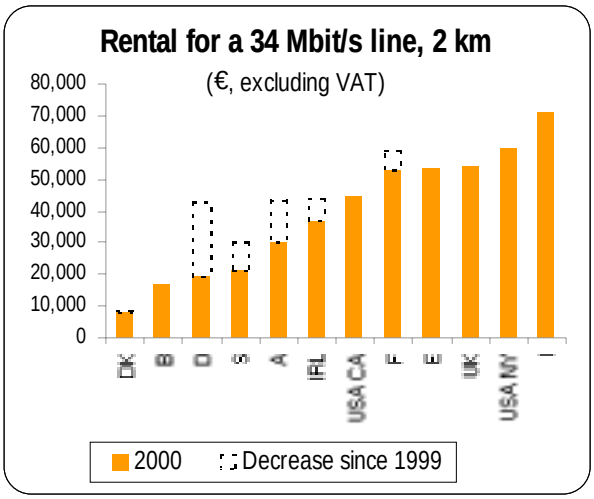


Chart 10

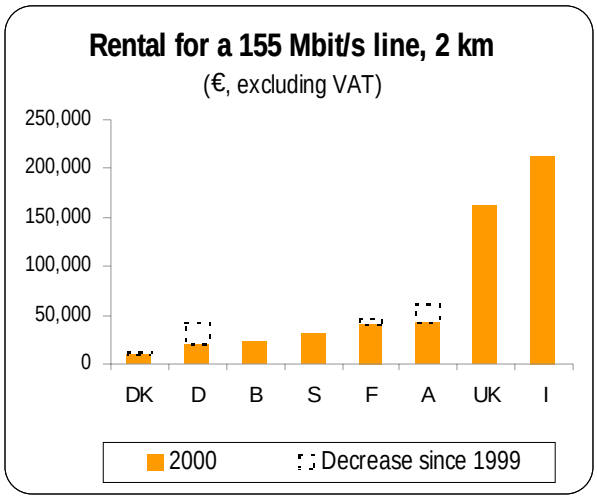


Chart 11

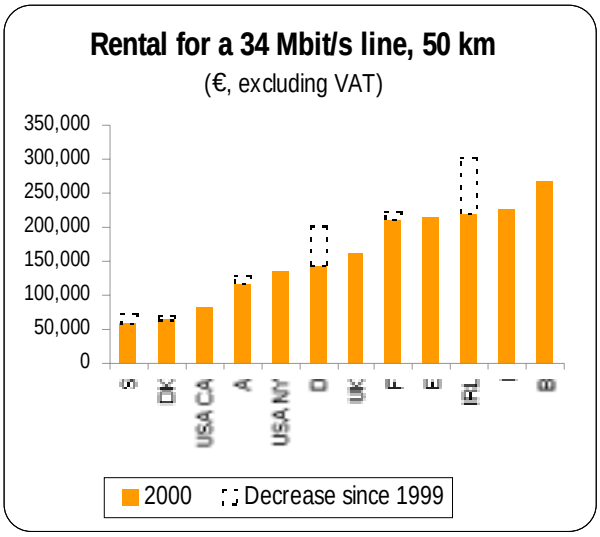


Chart 12

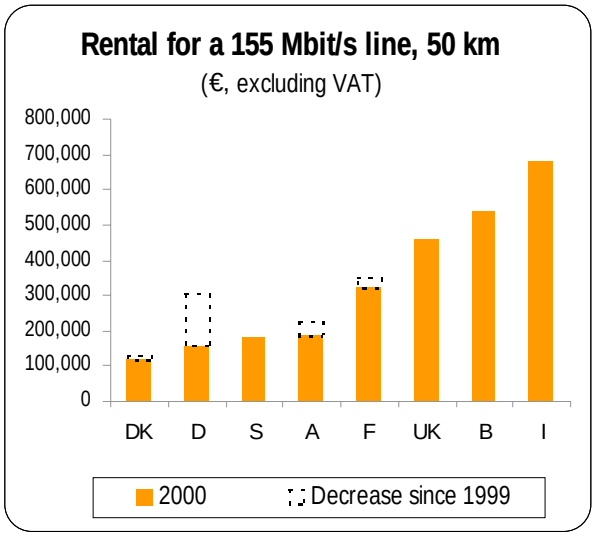


Chart 13

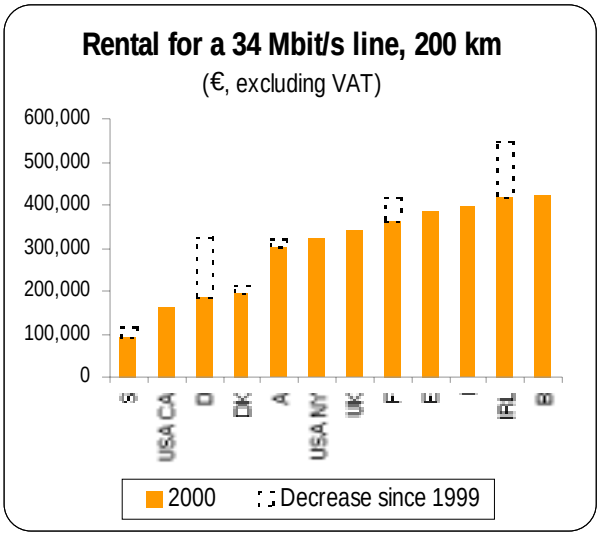
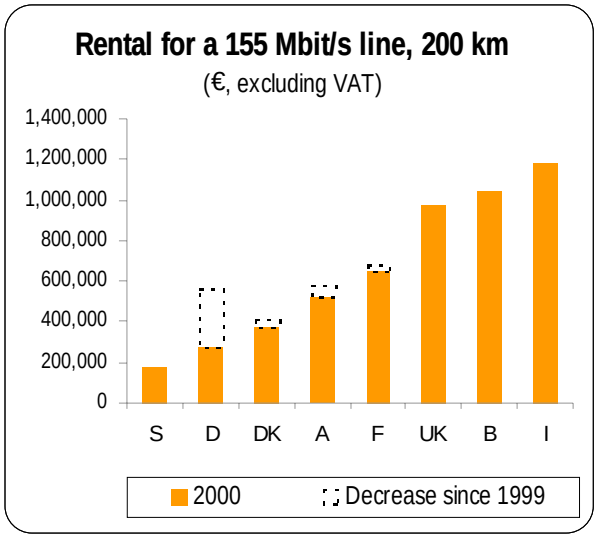


Chart 14



USA prices refer to 43 Mbit/s lines. Information not available for Japan and USA (155 Mbit/s).

1.2. NATIONAL LEASED LINE PRICE TRENDS (1 AUGUST 1997- 1 AUGUST 2000)

Please note the corrigendum for EU averages in chart 16.

1.2.1. 64 Kbit/s

Chart 15

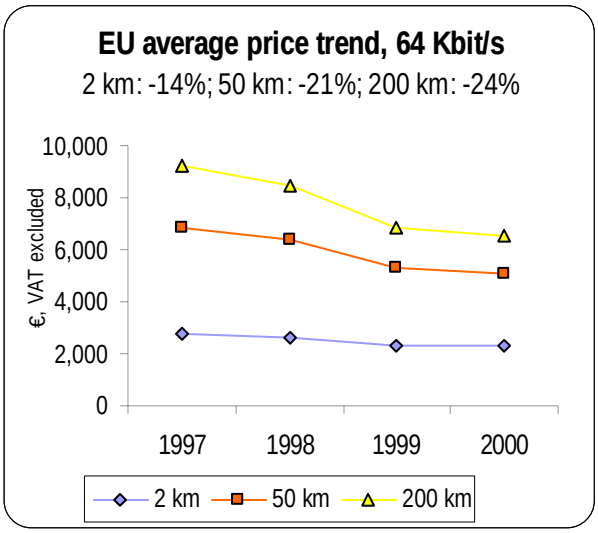
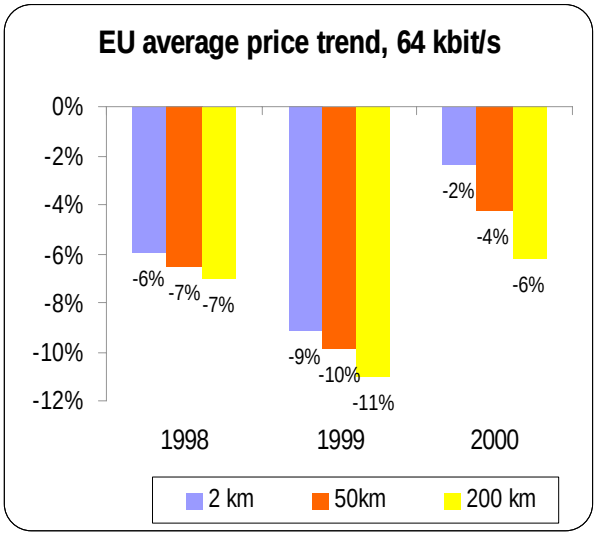


Chart 16



1.2.2. 2 Mbit/s

Chart 17

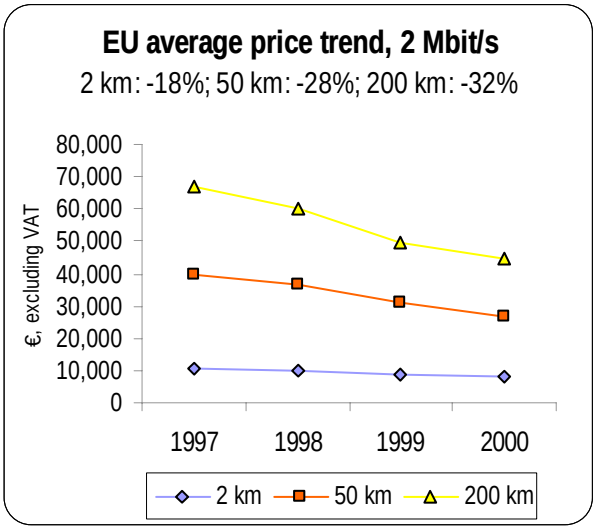
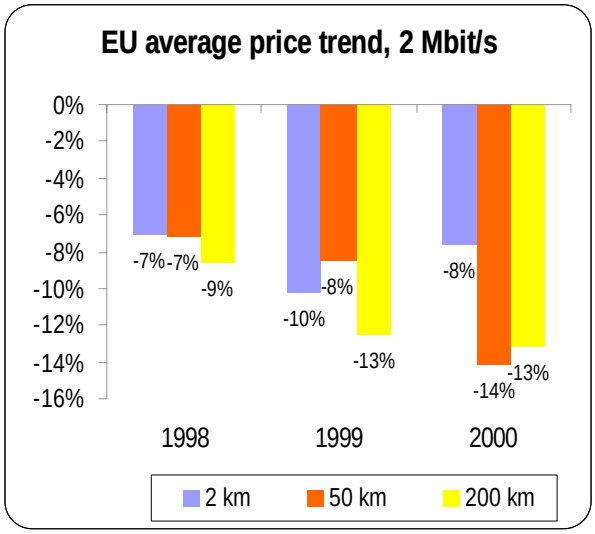


Chart 18



2. INCUMBENTS' INTERNATIONAL LEASED LINES

This section examines the standard retail prices (annual rental) for international leased line services (half-circuits out of each country) charged by the incumbent operators in each Member State as of 1 August 2000. An analysis of the price development over the period from August 1997 to August 2000 is also included.

Three destinations are covered: international half circuits to the nearest EU country (hereafter "near EU"), to the most distant EU country ("far EU") and to USA. Near and far EU countries are defined in Table 1.

Furthermore, 3 types of circuits are considered: digital 64 Kbit/s, 2 Mbit/s and 34 Mbit/s. Given that price information on 155 Mbit/s international lines is only available for three countries, the analysis of these circuits is omitted.

Table 1: Definition of destination countries.

From:	Near EU	Far EU
B	F	EL
DK	S	EL
D	F	EL
EL	I	DK
E	P	DK
F	B	EL
IRL	UK	EL
I	EL	DK
L	D	EL
NL	D	EL
A	D	EL
P	E	DK
FIN	S	EL
S	DK	EL
UK	F	EL

The following should be noted:

- All charges are in euro per year, VAT excluded. See the "Appendix on exchange rates" for details on euro exchange rates used in this section.
- Germany is not included in the analysis because Deutsche Telekom does not disclose prices for international half circuits.
- The expression "EU average" refers to the simple, non-weighted average across EU countries.
- The EU average variation represents the simple, non-weighted average of national variations.

2.1. INTERNATIONAL LEASED LINE PRICES AS OF 1 AUGUST 2000

Please note the corrigendum for DK and, consequently, EU averages on the basis of figures provided by the NRA in charts 19, 22, 23, 24, 25, 26.

2.1.1. 64 Kbit/s

Chart 19

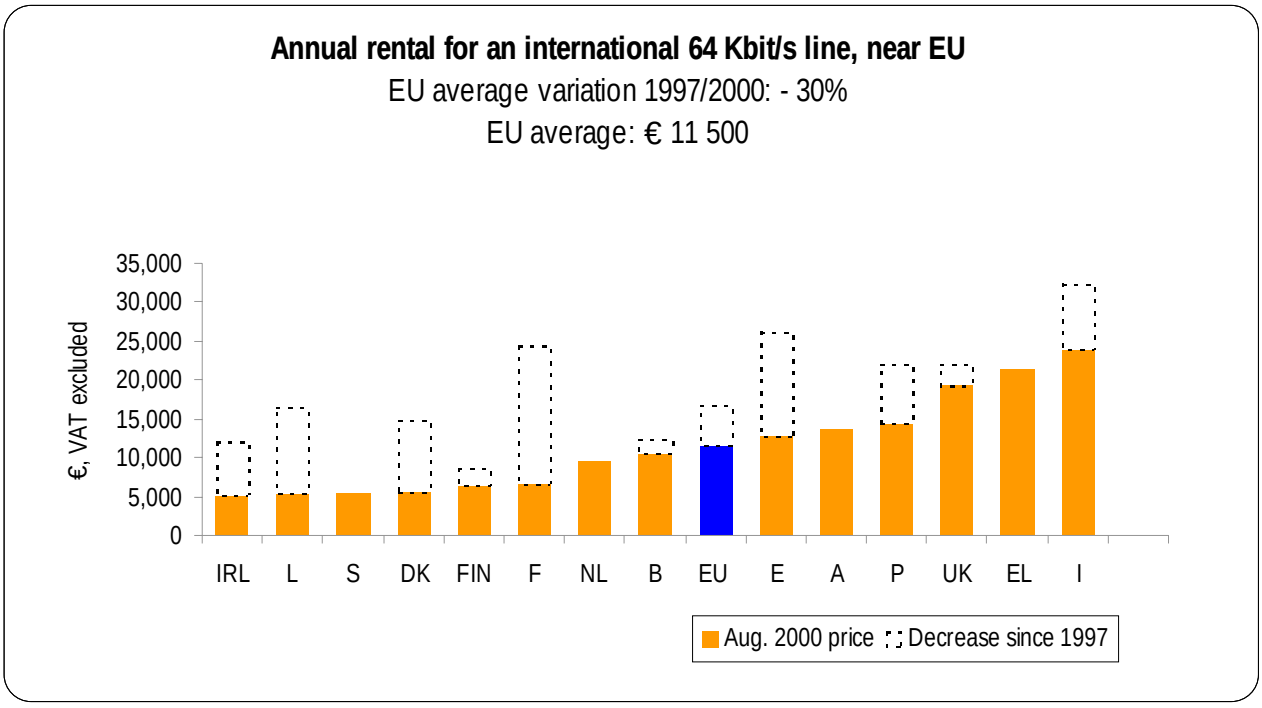


Chart 20

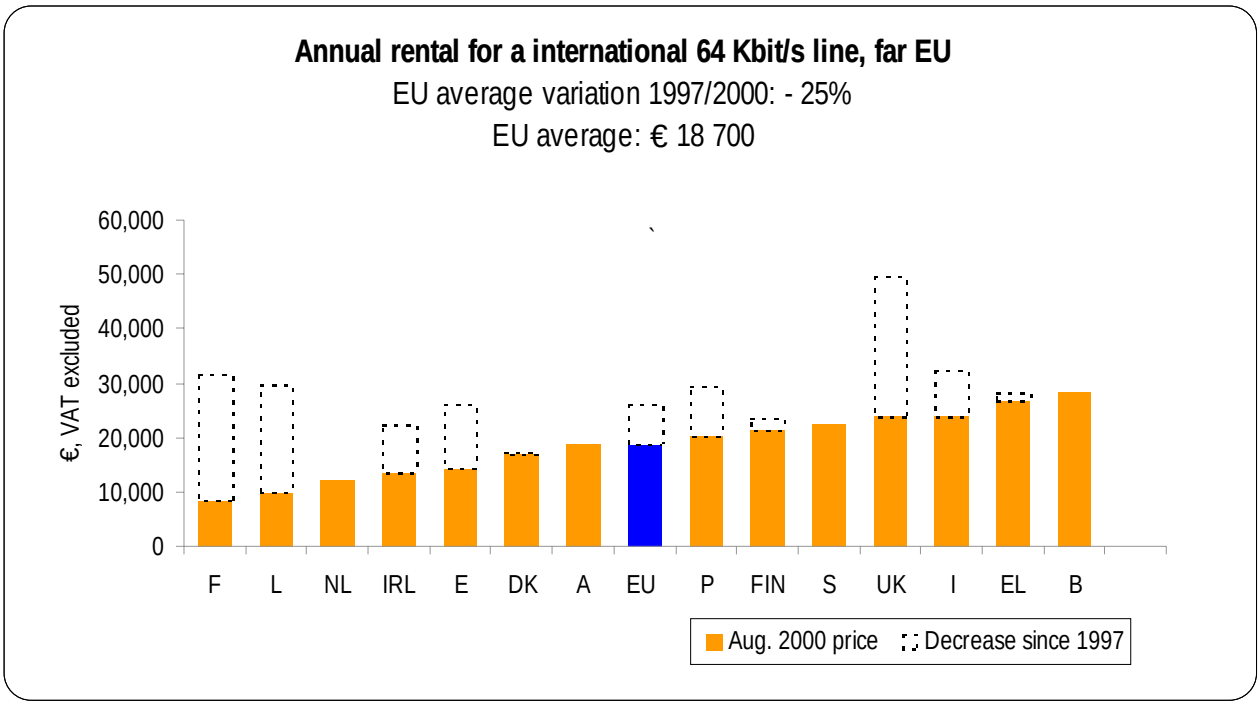
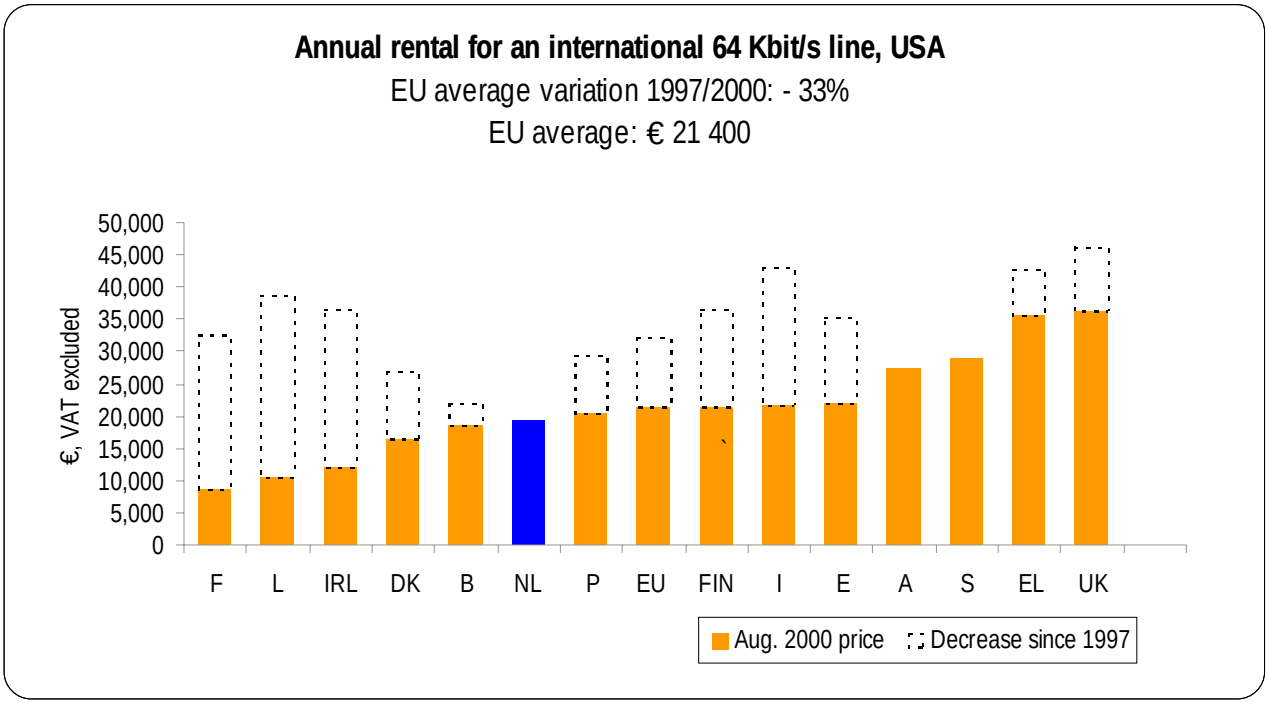


Chart 21



2.1.2. 2 Mbit/s

Chart 22

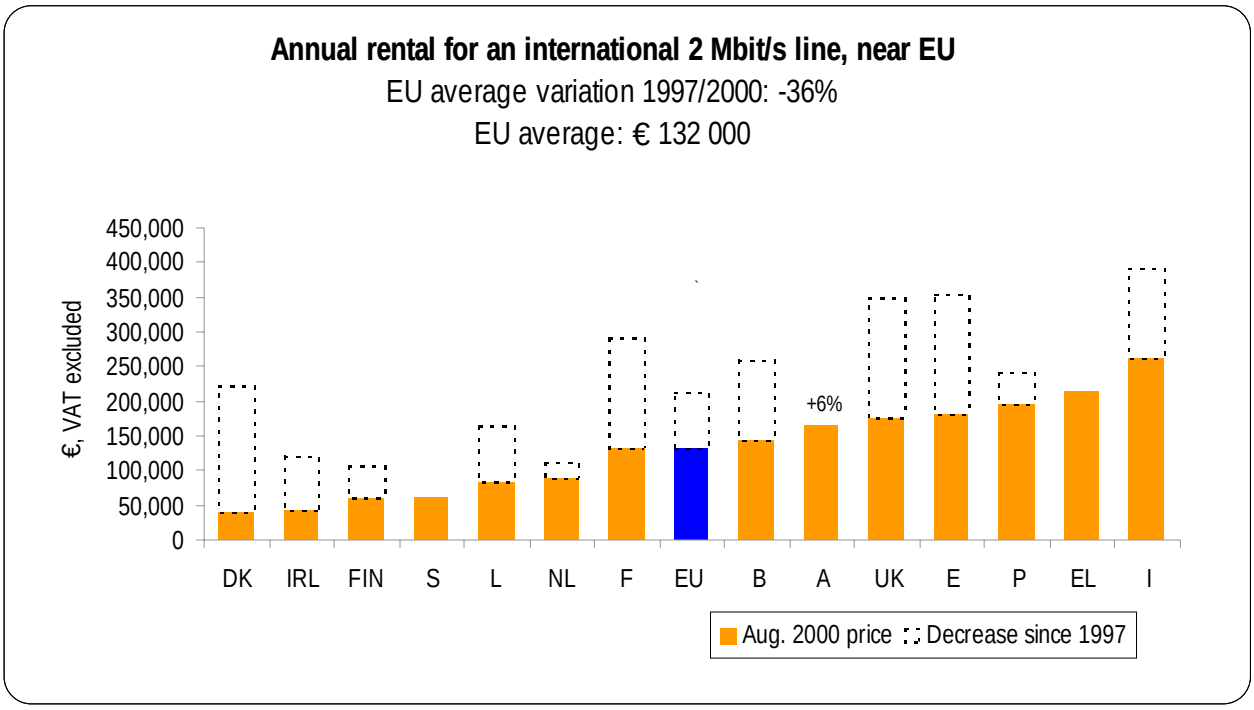


Chart 23

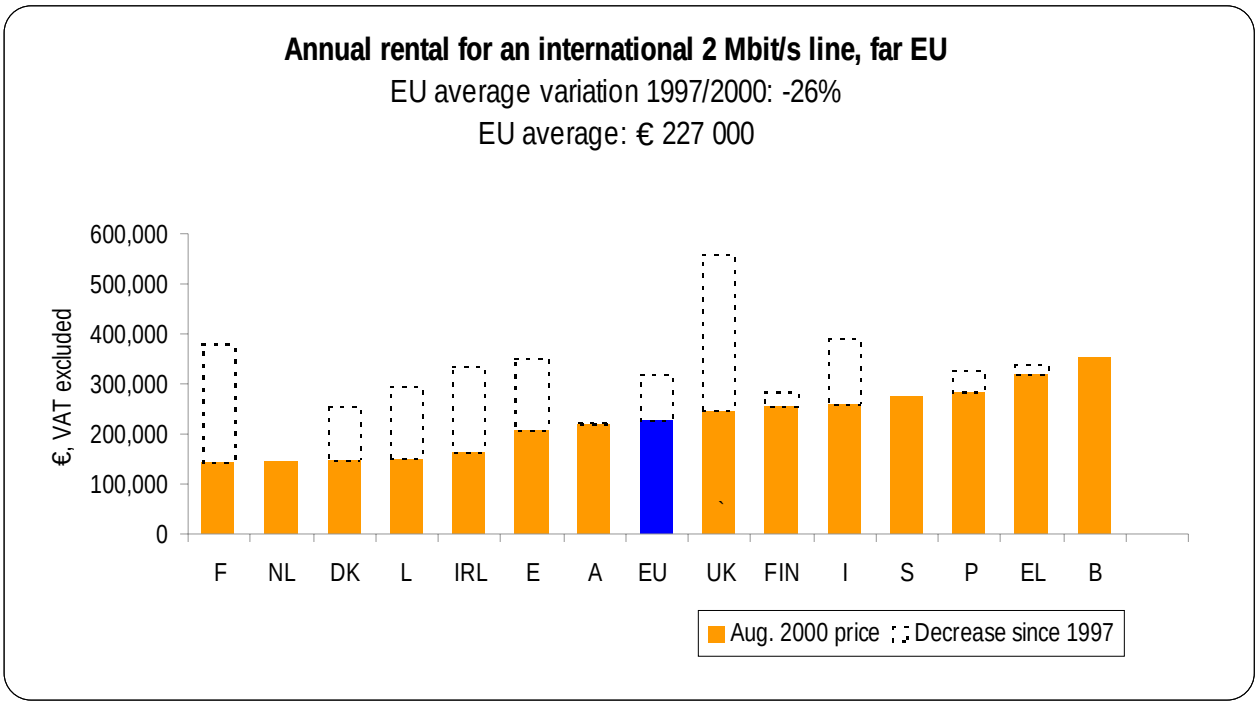


Chart 24

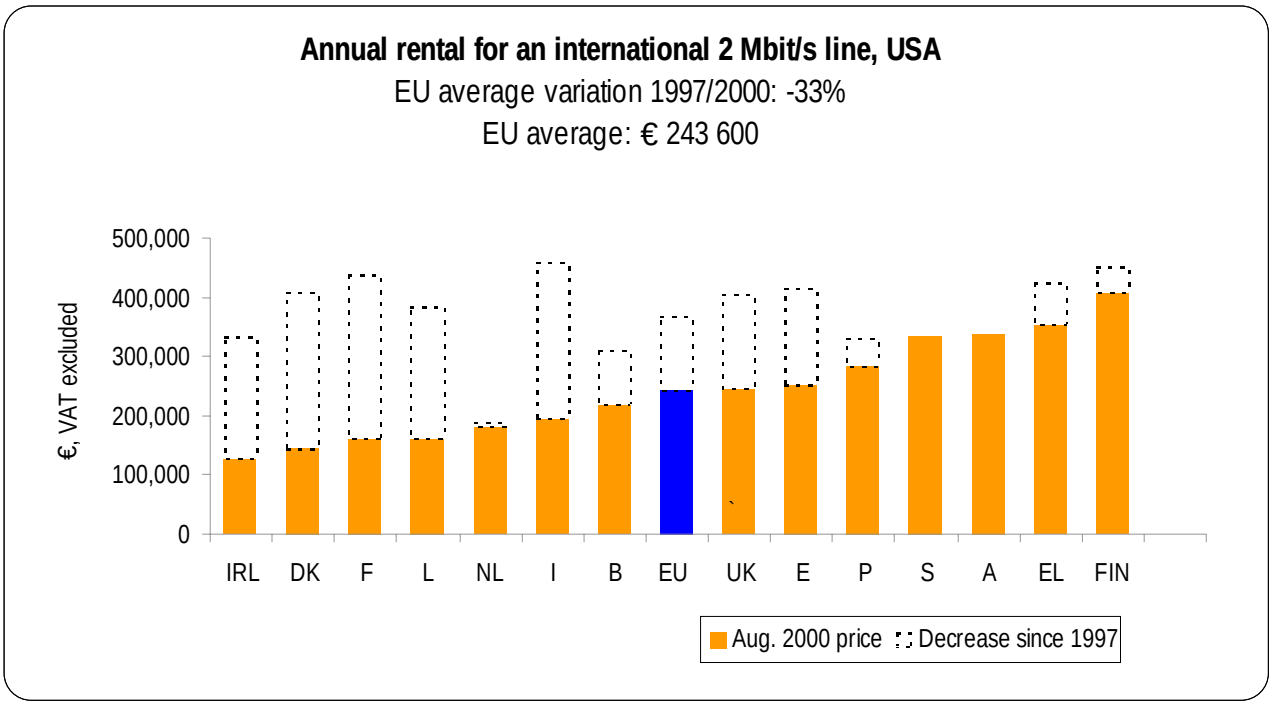
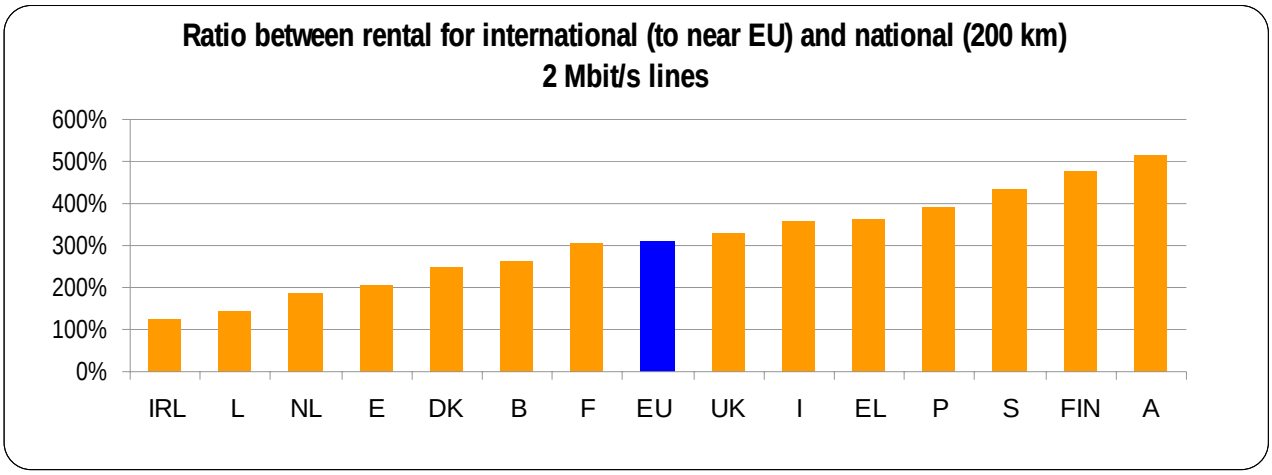


Chart 25



2.1.3. 34 Mbit/s

In all charts for 34 Mbit/s lines, the 1999 data are not available for I and FIN. Therefore, no conclusion can be drawn from the charts as to lack of variation with respect to last year's prices.
Please note that the following charts show monthly rentals.

Chart 26

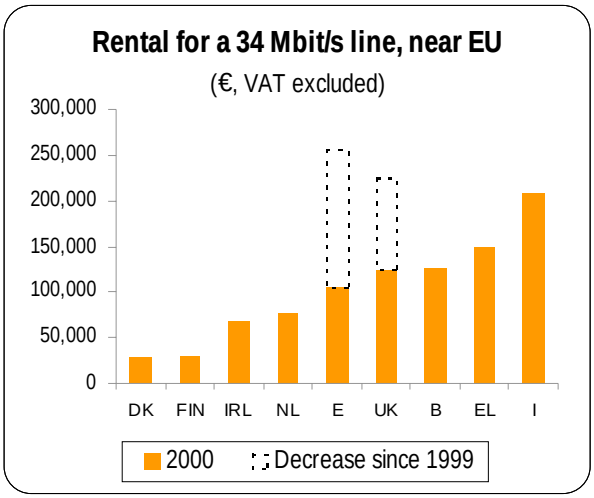


Chart 27

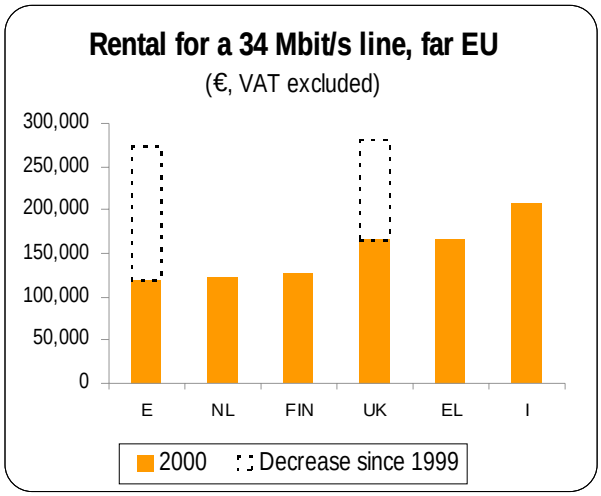
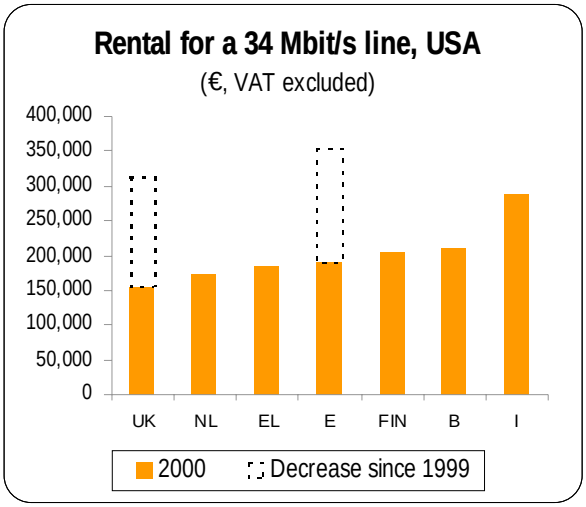


Chart 28



2.2. INTERNATIONAL LEASED LINE PRICE TRENDS (1 AUGUST 1997- 1 AUGUST 2000)

Please note the corrigendum for EU averages, on the basis of new figures for DK provided by the NRA, in charts 30 and 32.

2.2.1. 64 Kbit/s

Chart 29

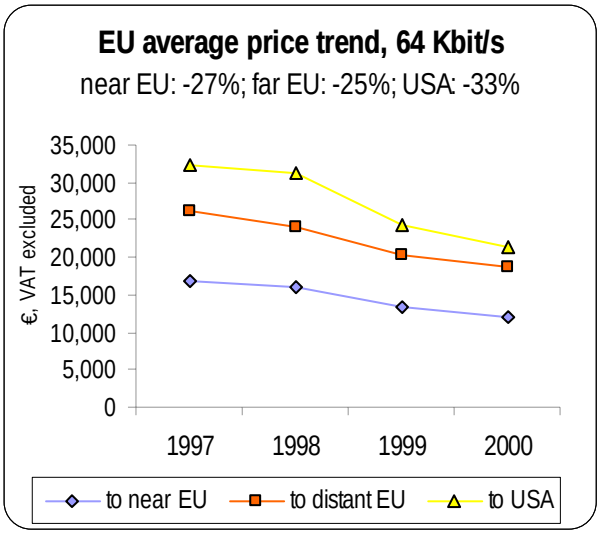
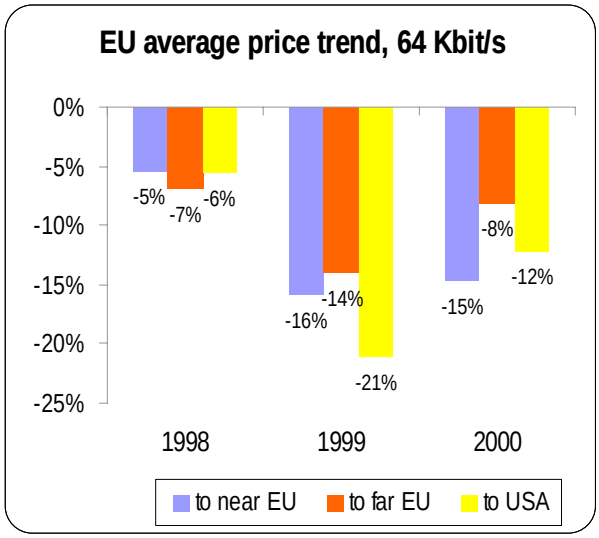


Chart 30



2.2.2. 2 Mbit/s

Chart 31

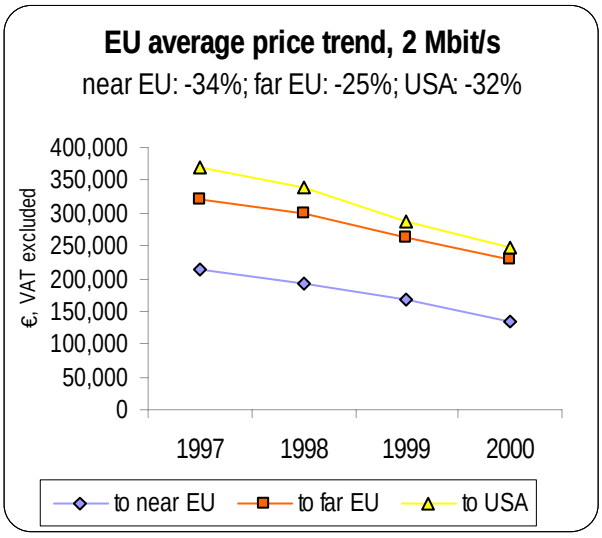
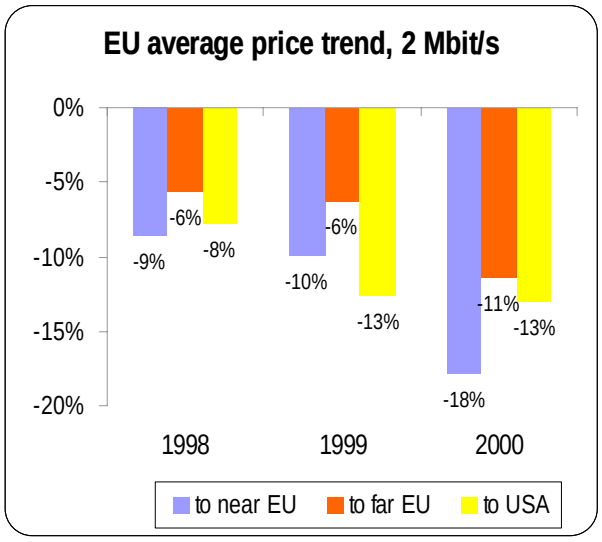


Chart 32



LICENSING

This section analyses the main economic indicators for competition in the fixed telecommunications market (voice telephony and network services): number of players, market shares, choice of operators for users, use by operators of the various possibilities for offering voice telephony (carrier (pre-)selection or direct access), licence fees for fixed services.

Public fixed voice telephony is defined as a service available to the public for the direct transport on a commercial basis of real-time speech via the public switched network, such that any user can use equipment connected to a network termination point at a fixed location to communicate with another user of equipment connected to another termination point.

Public fixed network services are defined as the conveyance of calls, messages and signals over a telecommunications network, including any necessary switching. They may be network interconnection services, which are provided to other network operators to enable calls and associated functions to be passed through interconnected networks, or basic retail network services, which are provided to customers such as end users or service providers.

The data on the number of operators offering telecommunications services include both network operators and service providers. Network operators are defined as operators that install, manage and operate their own (wire or wireless) telecommunications transmission network to provide public telephony services or public network services. Service providers are defined as operators that offer telecommunications services using mainly third-party networks. They may also manage, operate and control leased capacity[1]. These definitions may differ from those used in the national law of individual countries. In particular, in some countries service providers engage exclusively in reselling activities, while in others they may also operate leased capacity.

Incumbent operators are defined as telecommunications organisations which enjoyed special or exclusive rights granted by Member States (as defined by Commission Directive 90/388/EEC) and/or a de facto monopoly before liberalisation.

Depending on the national licensing regime, telecommunications operators[2] may have individual licences/authorisations or be subject to declaration/notification procedures, or may effectively operate in the market without being subject to any individual licence or declaration procedure[3]. Operators may have to apply (and pay) for a number of different licences or may have to pay for a licence with a wider scope than they require (i.e. nationwide), even if they do not make full use of it.

The following table shows the licencing regimes in the 15 Member States for the four main categories of fixed services.

[1] Operators engaged exclusively in reselling activities (call-back or calling card operators) or dealing only with marketing, billing, etc., are excluded.

[2] In the following, "operators" means both network operators and service providers; "authorised operators" means operators that have been granted an individual licence/authorisation or are subject to a declaration/notification procedure.

[3] This is the case for service providers in many countries (Austria, Germany, etc.) and for all types of public network operators offering voice telephony in the Netherlands and Denmark.

Table 1 Licensing regime for fixed public services

	Public fixed voice telephony services (not including network operation)	**Operation of public network and provision of network services** (not including voice telephony)	**Public voice telephony over a self-operated network**	**Public voice telephony and network services over a self-operated network**
B	VT	NET	NET + VT	
DK	Free (operators apply only for numbers)			
D	VT (class 4)[4]	NET (class 3)	NET + VT (class 4 + class 3)	
EL	Derogation	Not liberalised yet	Derogation	Derogation
E	VT (type A)	NET (type C1)	LL and VT on NET (type B1)	
F	VT (L34-1)	NET (L33-1)	LL and VT on NET (L34-1and L33-1)	
IRL	VT and LL on NET (General Licence)	NET[5] (Basic Licence)	VT and LL on NET (General Licence)	
I	VT	NET	VT on NET	VT on NET + NET
L	VT (type C)	NET (type B)	LL and VT on NET (type A)	
NL	VT (registration)	NET[6] (registration)	VT on NET (registration)	VT on NET + NET (registration)
A[7]	Notification	NET	VT on NET	VT on NET + NET
P	VT	NET	NET + VT	
FIN	Notification for fixed service	Notification for fixed network	Notification for fixed services and fixed network	
S	VT on NET (licence/registration)	NET (licence/registration)	VT on NET (Licence/registration)	VT on NET + NET (licence/registration)
UK[8]	LL and VT on NET (PTO licence)			

Legend:

Public fixed voice telephony (not including network operation) (VT)

Provision of national and international public voice telephony[9], not including the installation, operation and control of the operator's own telecommunications network (but including the operation and control of leased capacity). Simple call-back and calling card services and operators dealing only with marketing, billing, etc., are excluded.

[4] The class 4 licence refers to "voice telephony over a self-operated network", which should not be confused with the definition of self-operated network used in this report (i.e. owned self-controlled and self-operated network). In Germany non-self-operated network is restricted to services offered by resellers who have no de facto control of a self-operated network.

[5] Holders of a general licence are also permitted to operate a public network (and provide network services), but a basic licence is sufficient.

[6] In the Netherlands, the licence to provide a public network service does not give operators public network status, but gives them the right to install and manage their own network. The public network licence is linked to voice telephony services (VT on NET).

[7] Austria does not have a specific licence category for voice telephony service providers, but a licence for the operation of transmission capacity for public voice telephony.

[8] Under the new licensing scheme in the UK, all former International Facilities Licences (that allowed licensees to install a cross-border network and to offer international calls) and all former Public Telecommunications Operator (PTO) licences (that allowed licensees to install a national network and to offer domestic services) have been replaced by new standard PTO licences, allowing licensees to offer both domestic and international services. By the same token, operators with a local licence now have the right to offer international services.

[9] Public fixed voice telephony is defined as a service available to the public for the direct transport on a commercial basis of real-time speech via the public switched network, such that any user can use equipment connected to a network termination point at a fixed location to communicate with another user of equipment connected to another termination point.

Operation of public network and provision of network services (not including voice telephony) (NET)

The installation, control and operation of the operator's own public network[10], including the right to offer national and international network services[11] to the public (not including the provision of voice telephony).

Public voice telephony on a self-operated network (not including network services) (VT on NET)

Provision of public fixed voice telephony over a network owned, controlled and operated by the operator, excluding the provision of network services.

Public voice telephony and network services on a self-operated network (VT and LL on NET)

Provision of public fixed voice telephony and public fixed network services over a network owned, controlled and operated by the operator.

The data presented below have been provided by the national regulatory authorities and indicate the position at August 2000; where the data on operators' market shares were not available from the NRA, other information sources were used.

1. PUBLIC FIXED VOICE TELEPHONY

This section analyses the fixed voice telephony market, in terms of the number of authorised operators, operators that are actually offering voice telephony services, the percentage of the population with a choice of operators, the incumbent's market share, and the facilities used by the operators to provide public voice telephony services.

Figures in Chart 3,6 and 7 should be read service by service (local, long-distance and international call markets) and not as country totals, since the same operator is usually authorised to offer more than one type of service.

Greece is not considered in this section as it has a derogation until 31 December 2000.

Chart 1 shows the number of local and national operators authorised to offer public fixed voice telephony: fixed network operators, mobile operators, service providers and cable television (CATV) operators. The number of local operators is not strictly comparable between Member States, since it varies considerably between countries depending on the division of national territory into local areas.

Local operators are authorised to offer telecommunications services only to users located in specific areas (to whom they provide local calls as well as long-distance and international calls through interconnection agreements with other operators). National operators are authorised to offer telecommunications services without any geographical restriction. They may provide all types of telephony services (local, long-distance and international calls) to users located throughout the national territory. In the following charts, "national operator" means an operator who has been granted either a national licence/authorisation or a licence under a licensing scheme which does not specify the geographic coverage.

The number of operators authorised to offer voice telephony indicates the potential for competition in the market rather than the current level of competition. For this reason, an estimate of the number of operators actually offering public voice telephony is given. These figures do not show to what extent the operators are offering services. Many new entrants initially provide only services to

[10] Public network is defined as a telecommunications network used, in whole or in part, for the provision of publicly available telecommunications services.

[11] Public fixed network services are defined as the conveyance of calls, messages and signals over a telecommunications network, including any necessary switching. They may be network interconnection services, which are provided to other network operators to enable calls and associated functions to be passed through interconnected networks, or basic retail network services, which are provided to customers such as end-users or service providers.

business users in the main cities, even if they have a national licence allowing them to offer all types of services throughout the country.

Belgium, Denmark, Germany, Ireland, Luxembourg, the Netherlands and Sweden do not distinguish between local and national operators: all authorised operators are permitted to offer these services throughout the country[12].

Data for Sweden include both licensed and notified operators[13].

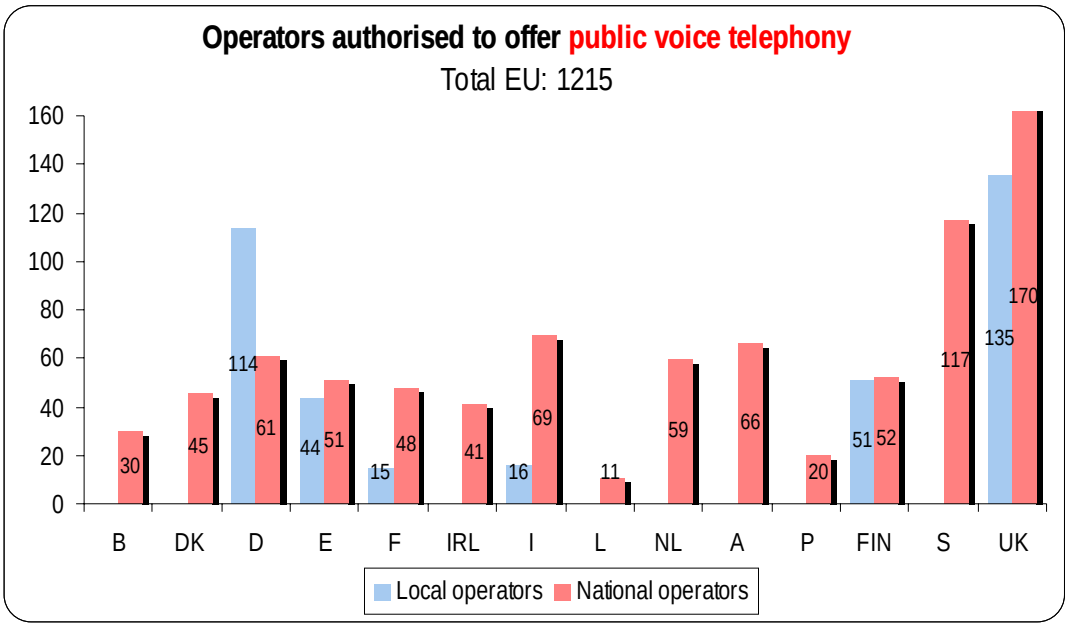
In Finland, 46 of the 66 regional operators are local incumbents and belong to the Finnet Group.

In Denmark, operators are not subject to any individual licence/authorisation requirements or notification procedures. The number of operators that have been allocated an access code has been used as proxy for the number of authorised operators.

In the United Kingdom, 90% of the 135 regional public telecommunications operators (PTOs), which relate to cable franchises, are held by two companies.

The figures for the Netherlands include only operators that have started operations.

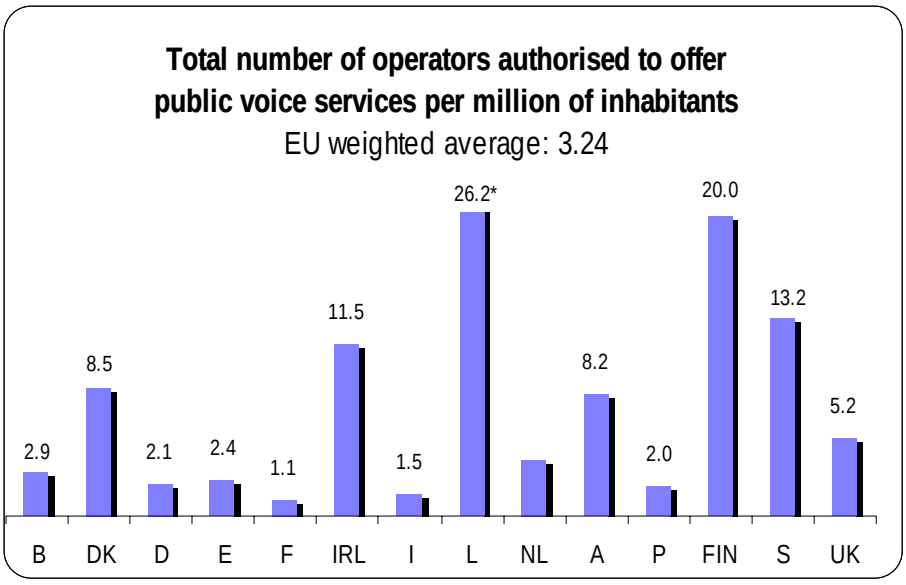
Chart 1



[12] The legal framework for the licensing regime in Austria does not distinguish between local and national coverage of licences, although operators can apply for a restricted scope of the network and/or the services provided.

[13] According to the Swedish licensing regime, a notification is required for the provision (within a publicly available telecommunications network) of telecommunications services (fixed telephony, mobile services, leased lines, etc.) which require allocation of capacity from the telephony numbering plan. An individual licence is required for the provision of telecommunications services if the activity is considered to be of "considerable scope" with regard to the areas covered, the number of users or other comparable factors.

Chart 2

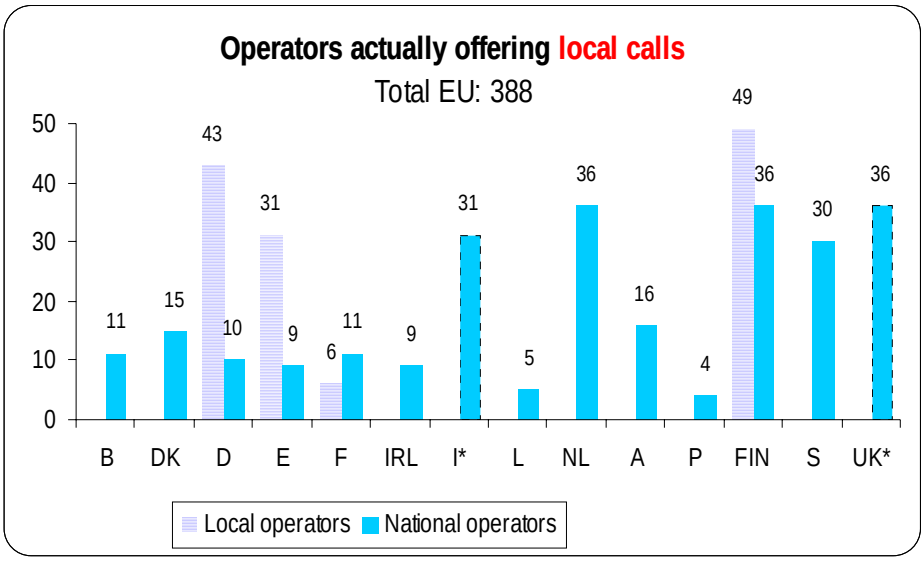


1.1. LOCAL CALLS MARKET

In Finland, 46 of the 66 regional operators are local incumbents and belong to the Finnet Group.

The figures for the Netherlands do not include 23 operators for which the national authorities have no information on the types of services provided.

Chart 3

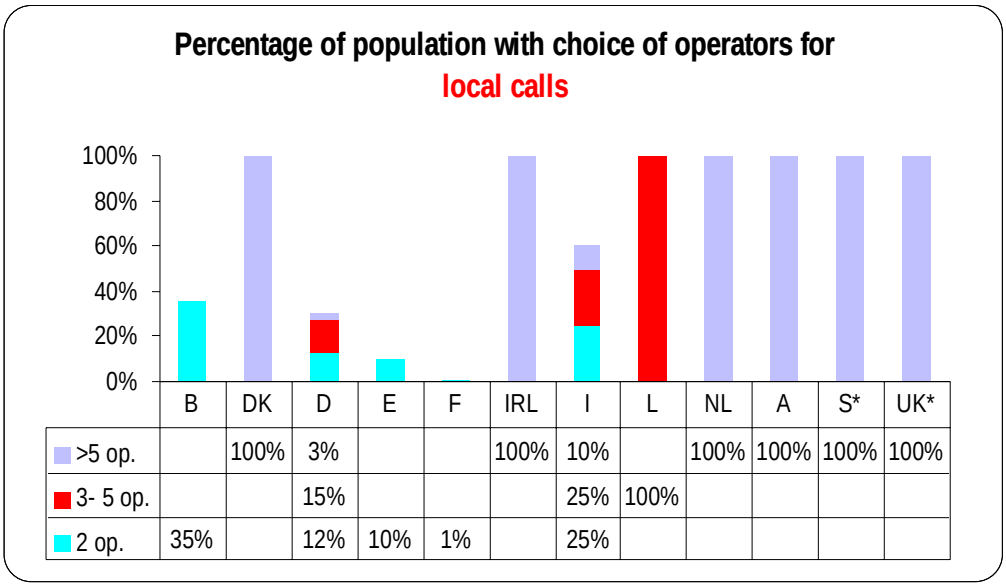


* The figures for Italy and the United Kingdom do not distinguish between local and national operators.

Chart 4 shows the estimated percentage of the population with a choice between 2 operators, 3 to 5 operators and more than 5 operators for local calls. Chart 8 indicates the same for long-distance and international calls.

Data are not available for Finland and Portugal.

Chart 4



	B	DK	D	E	F	IRL	I	L	NL	A	S*	UK*
>5 op.		100%	3%			100%	10%		100%	100%	100%	100%
3- 5 op.			15%				25%	100%				
2 op.	35%		12%	10%	1%		25%					

* The figures for Sweden and the United Kingdom refer to the overall call market (local, long-distance and international).

Chart 5 shows the incumbent operators' share of the local call market estimated on the basis of retail revenues.

The 1999 figures for Austria are estimates of the incumbent's share of the three call markets (local, long-distance and international) taken together.

For Finland, the figures refer to the combined market share of the two incumbents (Sonera and Finnet groups).

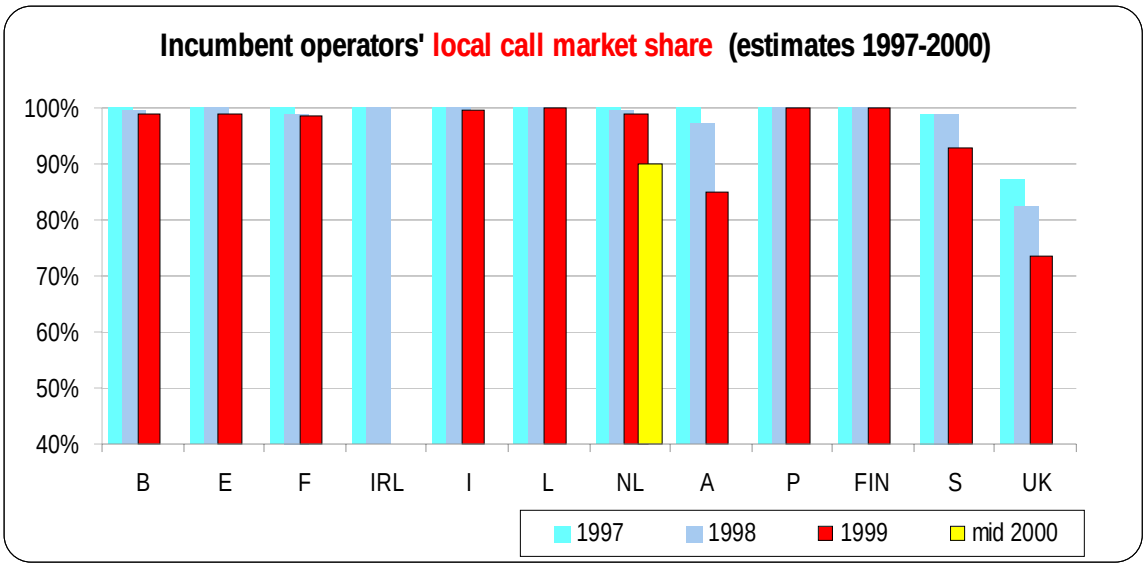
The most recent market share estimate for Ireland refers to 1998.

The 1998 market share for France was calculated as a share of the three call markets (local, long-distance and international) taken together.

The only figures available for Denmark and Germany are based on call minutes, and have therefore not been included in the charts. The main finding for Denmark is that from 1997 to mid-2000 the incumbent operator's share of the national call market (local plus long-distance calls) fell from 100% to 63%. The main finding for Germany is that from 1997 to the end of 1999 the incumbent's share of the local call market fell from 100% to about 95%.

These figures are estimates provided by the NRAs, except for Belgium.

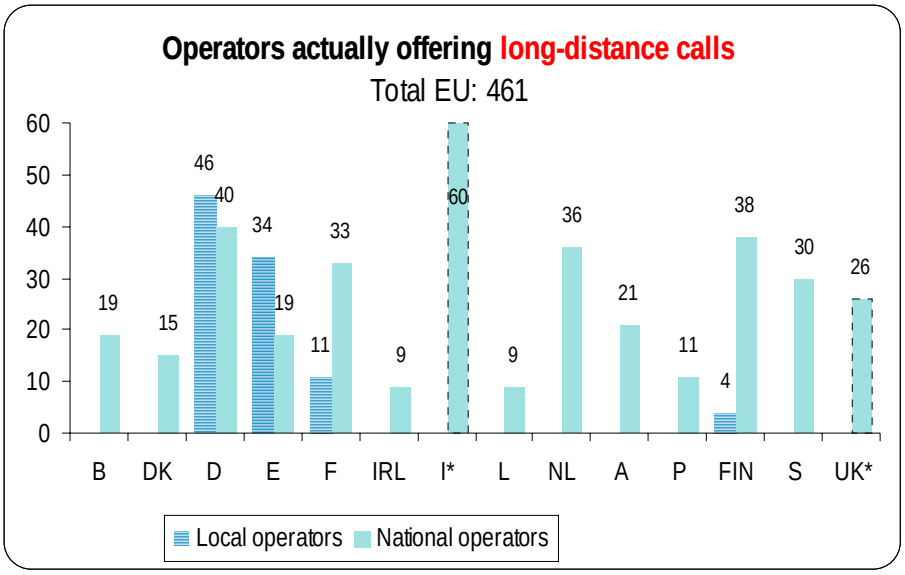
Chart 5



1.2. LONG-DISTANCE AND INTERNATIONAL CALLS MARKET

The figures for the Netherlands do not include 23 operators for which the national authorities have no information on the types of services provided.

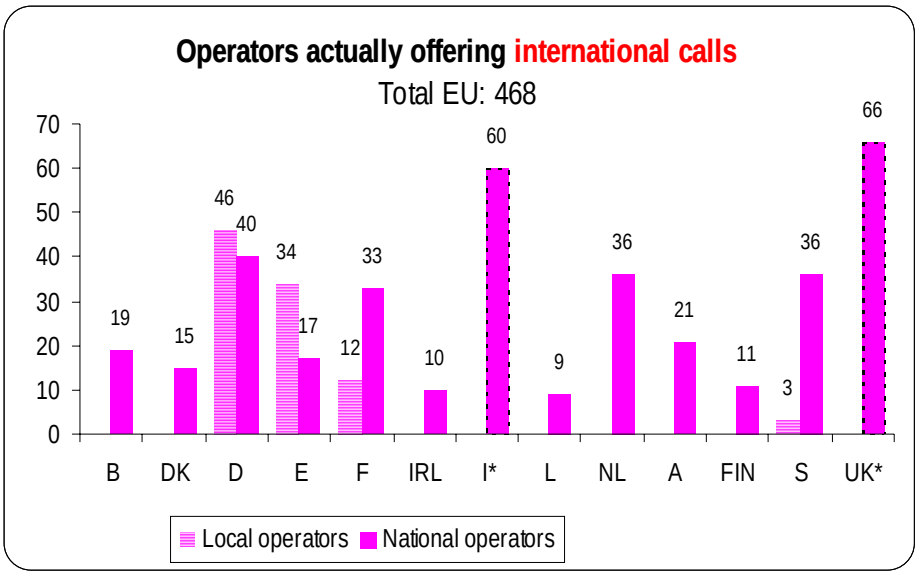
Chart 6



* The figures for Italy and the United Kingdom do not distinguish between local and national operators.

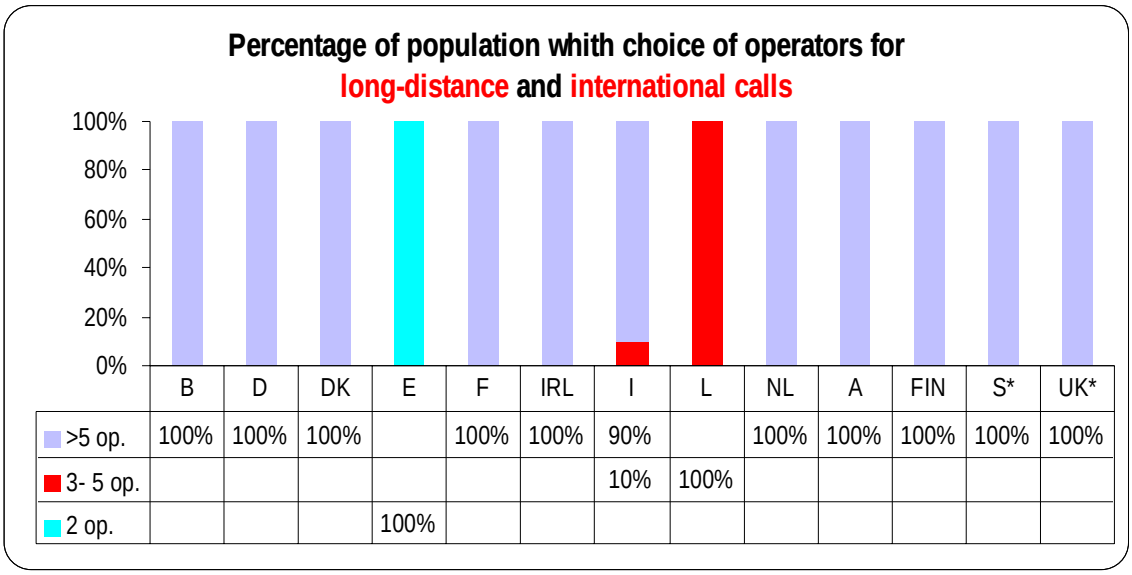
Because of its small size, no distinction is made in Luxembourg between the local and long-distance call markets.

Chart 7



* The figures for Italy and the United Kingdom do not distinguish between local and national operators.

Chart 8



	B	D	DK	E	F	IRL	I	L	NL	A	FIN	S*	UK*
>5 op.	100%	100%	100%		100%	100%	90%		100%	100%	100%	100%	100%
3- 5 op.							10%	100%					
2 op.				100%									

* The figures for Sweden and the United Kingdom refer to the overall call market (local, long-distance and international).

Chart 9 and Chart 10 show the incumbent operators' shares of the long-distance call market estimated on the basis of retail revenues.

Because of its small size, no distinction is made in Luxembourg between the local and long-distance call markets.

The 1999 figures for Austria are estimates of the incumbent's share of the three call markets (local, long-distance and international) taken together.

The 1998 market share for France was calculated as the aggregate share of the total voice telephony market (local, long-distance and international).

The most recent market share estimate for Ireland refers to 1998.

The only figures available for Denmark and Germany are based on call minutes, and have therefore not been included in the charts. In Germany, the incumbent operator's aggregate share of the long-distance and international call markets in terms of minutes was less than 60% (at the end of 1999); however, in terms of revenues it is expected to be higher. In Denmark, the incumbent operator's share of the international call market was 45% in mid-2000 (see comment on Chart 5 for the domestic market share).

These figures are estimates provided by the NRAs, except for Belgium.

Chart 9

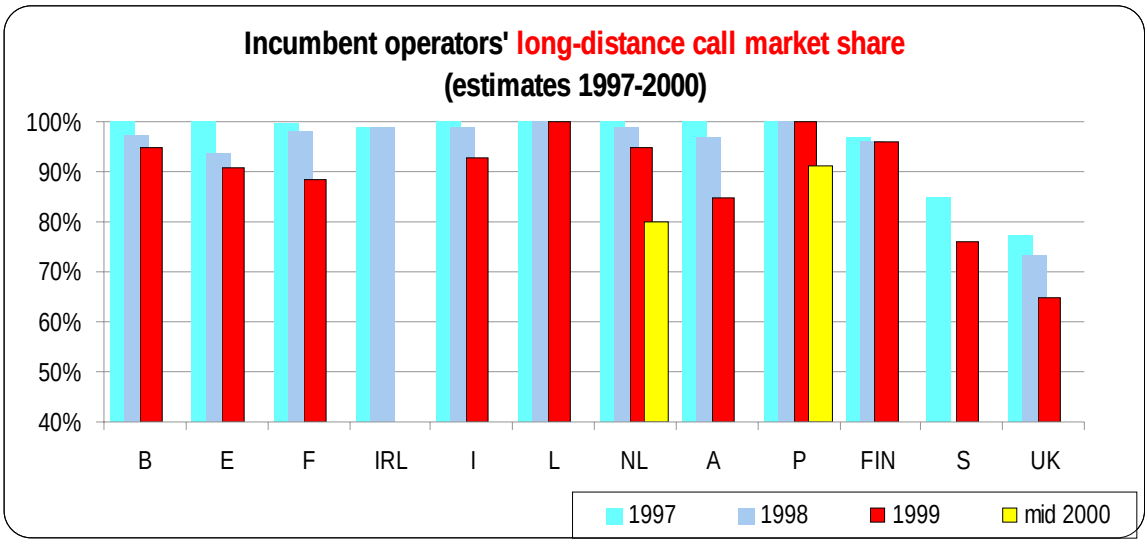
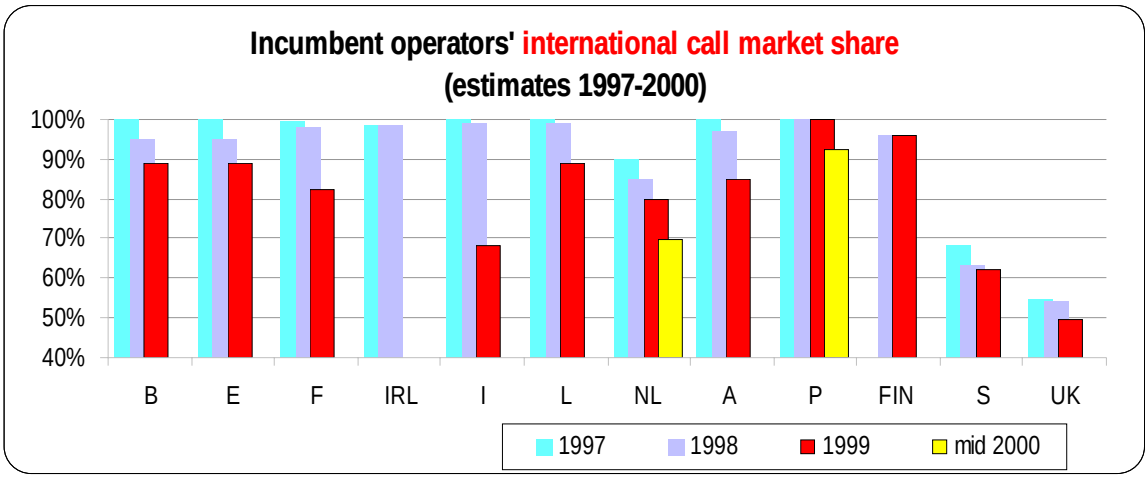


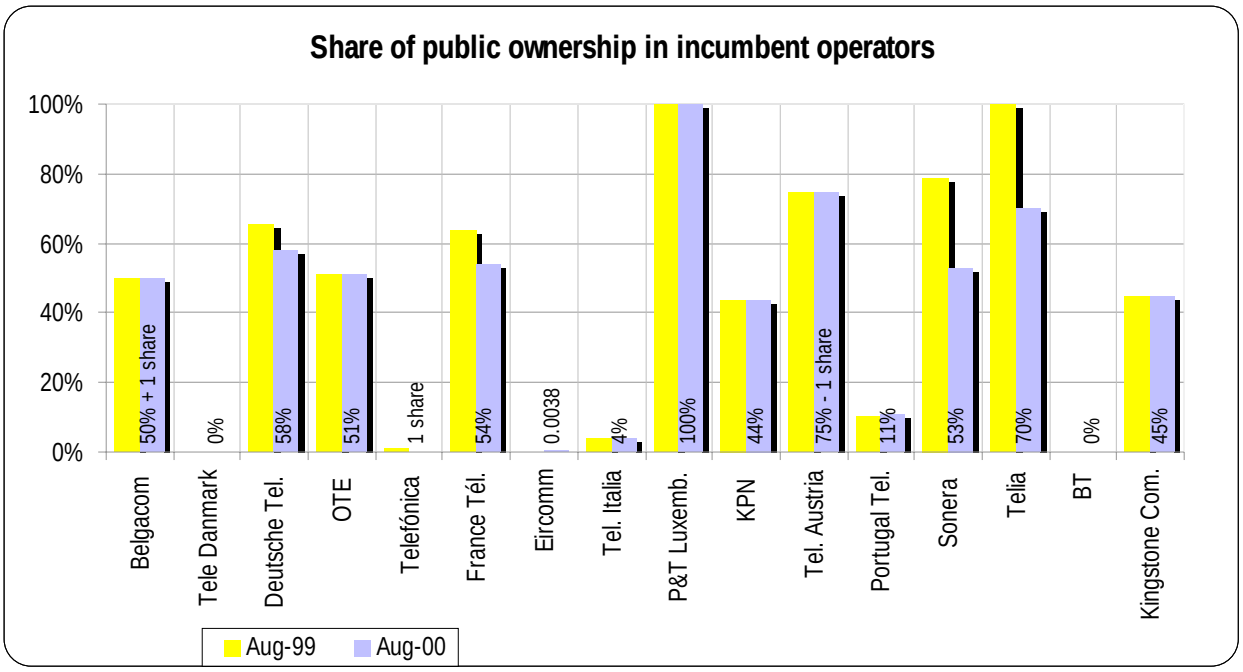
Chart 10



1.3. SHARE OF PUBLIC OWNERSHIP OF INCUMBENT OPERATORS

In order to provide a complete overview of the players in the EU telecommunications market, the following chart shows the degree of public ownership of the incumbent operators on the fixed market.

Chart 11



1.4. FACILITIES USED BY NEW OPERATORS TO PROVIDE VOICE TELEPHONY TO RESIDENTIAL USERS

This section shows the estimated number of alternative operators using carrier selection, carrier pre-selection or direct access to provide voice telephony services.

These figures are estimates provided by the national regulatory authorities and refer to August 2000.

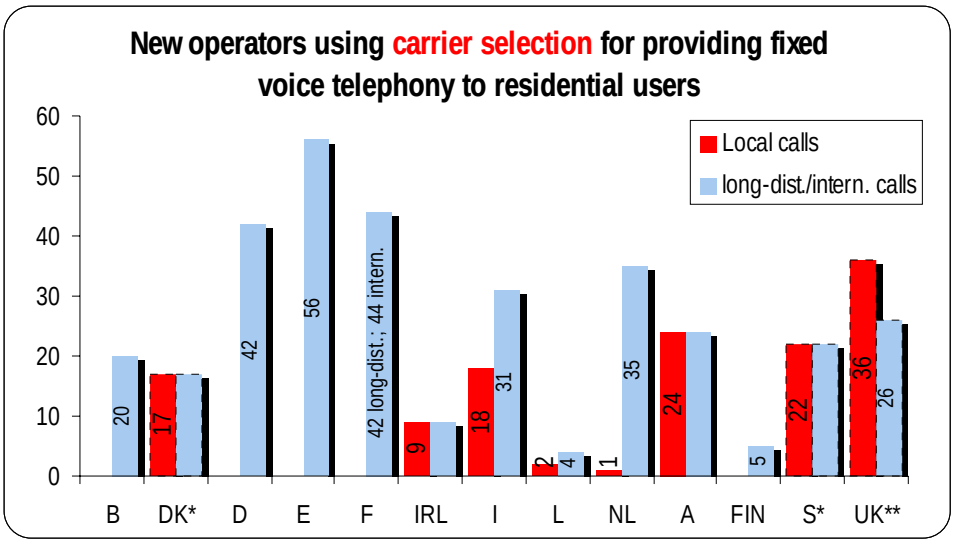
The following three charts should be read separately and not summed up as country totals, since most operators use more than one means of providing call services.

As indicated in the section on numbering, carrier selection and pre-selection are not yet available for local calls in Belgium, Germany, France and Finland.

Greece has been granted a deferment for the implementation of carrier selection and carrier pre-selection. Portugal and Spain have been granted deferments for the implementation of carrier selection.

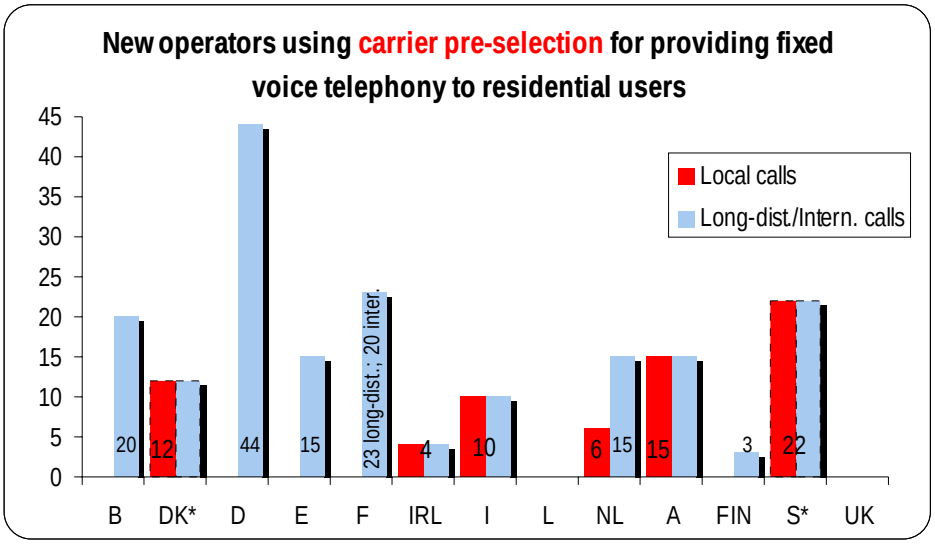
Because of its small size, no distinction is made in Luxembourg between local and long-distance calls.

Chart 12



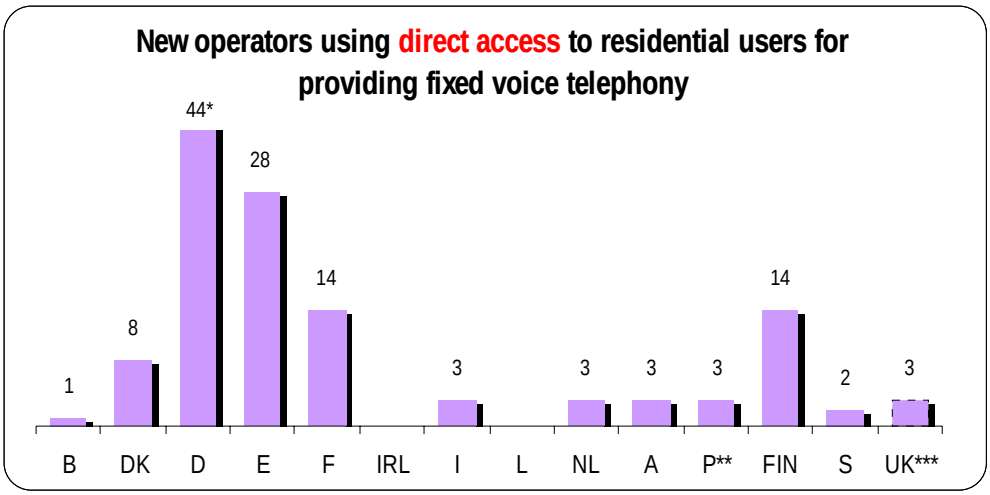
* The figures for Denmark and Sweden do not distinguish between the type of call.
** The figures for the United Kingdom refer to both residential and business users.

Chart 13



* The figures for Denmark and Sweden do not distinguish between the type of call.

Chart 14



* The value for Germany is not to scale.
** The figure for Portugal refers to the provision of domestic voice telephony. One new operator is using direct access to provide international fixed voice telephony.
*** The figure for the United Kingdom refers to both residential and business users.

2. PUBLIC FIXED NETWORK

This section analyses the number of network operators with a public network licence and/or authorised to offer network services (conveyance of calls, messages and signals over a telecommunications network, including any necessary switching).

The data presented below have been provided by the national regulatory authorities and give the position at August 2000.

The figures include all types of operator authorised to install and operate a public fixed network and/or to offer network services to the public: network operators, CATV operators, mobile and satellite operators (for the fixed part of their networks).

In Chart 15 the distinction between local and national public network operators concerns the geographical scope of the network, while the provision of network services is not usually subject to any geographical limitation. In the following, "local operators" means operators whose network does not cover the whole national territory (whatever the geographical scope of the service). Information on the number of operators actually offering network services is not included, since these data are not available for most of the Member States.

A licence to operate a local/regional public network does not necessarily imply the existence of local network access to customers ("the last mile"). See local loop section for more details.

Belgium, Denmark, Ireland, Luxembourg, the Netherlands and Sweden do not distinguish between local and national authorisations: all authorised operators may install and operate a national network and offer services throughout the country[7].

The data for Sweden include both licensed and notified operators.

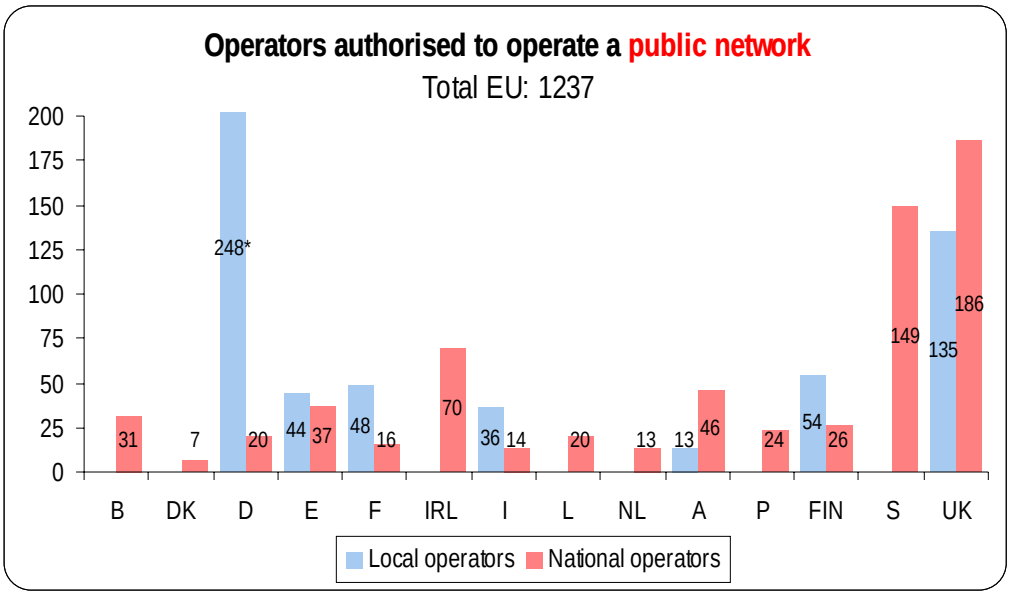
In Finland, 46 of the 66 regional operators are local incumbents and belong to the Finnet Group.

The figures for Denmark refer to operators that have actually started operations, since they are not subject to any individual licence/authorisation requirements or notification procedures.

In the United Kingdom, 90% of the 135 regional public telecommunications operators (PTOs), which relate to cable franchises, are held by two companies.

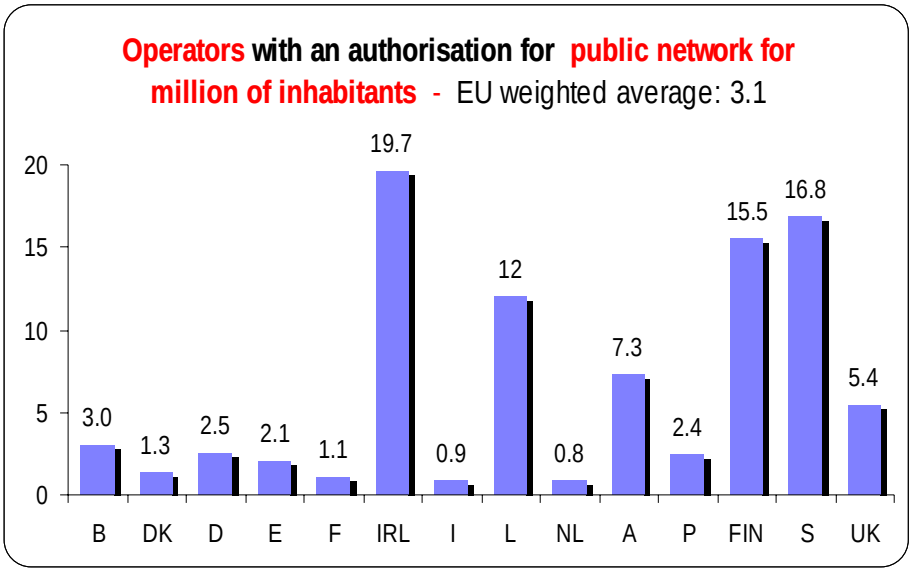
The figures for the Netherlands refer to operators that have started operations.

Chart 15



* The figures for Germany are not to scale

Chart 16



3. ADMINISTRATIVE AND NUMBERING FEES FOR THE PROVISION OF PUBLIC VOICE TELEPHONY AND PUBLIC NETWORK SERVICES

This section provides data on Member States' administrative and numbering fees for public voice telephony and public network services licences (including VSAT network services). The data have been provided by the national regulatory authorities and give the position in August 2000. See appendix for details on the euro exchange rates used in this section.

Administrative fees (Table 2) are fees charged to cover the costs of examining an application for a licence, granting the relevant authorisation and verifying compliance with the terms and conditions set once the service or network is operational.

The categorisation of administrative fees is closely linked to the general licensing framework applicable in the individual countries. The categories of administrative fees will depend on whether market entry is subject to an individual licence or a notification under a general authorisation scheme (see Table 1 for more details).

Numbering fees are fees applied by many Member States in view of the relative scarcity of numbering resources.

Table 3 sets out for each Member State the different kinds of fees charged for the main categories of numbers needed by each operator to provide public voice telephony services: standard telephone numbers (ITU-T Recommendation E.164) (for subscribers directly connected to the operator), carrier selection codes (to select the operator) and signalling point codes[14] (for interconnection with other networks at national (NSPC) and international (ISPC) level).

Ireland, Austria, Sweden, Portugal and the United Kingdom do not charge for such numbers, although often the right to use numbers is implicitly included in the licensing fee. Greece is not considered here because liberalisation is not yet completed.

The fees/charges paid by operators for providing public **VSAT network services** - VSAT (Very Small Aperture Terminal) refers to earth stations with an antenna diameter of less than about 3.8 meters, used mainly for data communications between fixed locations - are shown in Table 4, and refer to the provision of VSAT networks and services in the 200 kHz-1 MHz band using up to 100 stations, bi-directional, with or without frequency coordination, with connection to the public switched telephone network.

[14] Signalling Point Codes (SPCs) are used in public telephone networks using CCITT Signalling System No 7 (SS7). SPCs are the addresses of the signalling points. Two types of SPC are usually individually assigned to network operators: International SPCs and National SPCs. ISPCs are used in international transit networks, e.g. to address networks which connect the various networks in a specific country or to identify the national gateways of the various networks.

Table 2 Administrative fees (August 2000, €)

	Public fixed voice telephony services (not including transmission capacity)		**Operation of public network and provision of network services** (not including voice services)		**Public voice telephony on a self-operated network** (not including network services)		**Public voice telephony and network services on a self-operated network**	
	Single payment	**Annual fee**	**Single payment**	**Annual fee**	**Single payment**	**Annual fee**	**Single payment**	**Annual fee**
B	8 676	7 436 if SMP : 12 395	12 394	8 676 if SMP : 12 395	21 070	16 112 if SMP: 29 748	21 070	16 112 if SMP: 29 748
DK	0	0	0	0	0	0	0	0
D Geographic licence: Nationwide Local	1 533 687 1 022	0	1 533 687 1 022	0	6 952 707 2 044	0	6 952 707 2 044	0
Trunk line licence	5 112 per trunk line	0	306/km [15] (min. 1 022)					
Local line licence	51 per local line (min. 1 022)	0	102 per local line (min. 1 022)		153 per local line (min. 2 044)	0	153 per local line (min. 2 044)	0
E[16]	0	0.15% of relevant turnover	0	0.15% of relevant turnover	0	0.15% of relevant turnover	0	0.15% of relevant turnover
F > 5 regions	114 336	114 336	266 785	266 785	381 121	381 121	381 121	381 121
≤ 5 regions	45 734	45 734	76 224	76 224	121 958	121 958	121 958	121 958
≤ 1 region	22 687	22 687	38 112	38 112	60 979	60 979	60 979	60 979
≤ 1 department	15 244	15 244	15 244	15 244	30 488	30 488	30 488	30 488
≤ one city of 100 000 inhabitants	7 622	7 622	7 622	7 622	15 244	15 244	15 244	15 244
If SMP	Not relevant	Not relevant	Double fees	Double fees	Double fees	Double fees	Double fees	Double fees
IRL	12 497	1 015 or 0.2% of turnover>635 000	3 175	1 015 or 0.2% of turnover>635 000	12 497	1 015 or 0.2% of turnover >635 000	12 497	1 015 or 0.2% of turnover >635 000
I[17] Whole country	51 640	61 968	61 968	103 280	56 804	61 969	118 772	165 249
≤ 10 million inh.	20 656	25 820	20 656	51 640	25 820	25 820	46 472	77 460
≤ 200 000 inh.	10 328	10 328	10 328	25 280	15 492	10 328	25 820	35 608

Table 2 Administrative fees (cont'd)

	Public fixed voice telephony services (not including transmission capacity)		**Operation of public network and provision of network services** (not including voice services)		**Voice telephony on a self-operated network** (not including network services)		**Voice telephony and network services on a self-operated network**	
	Single payment	**Annual fee**	**Single payment**	**Annual fee**	**Single payment**	**Annual fee**	**Single payment**	**Annual fee**
L	620	37 184 plus % of turnover (min. 0.15% max. 0.30%)	6 197	12 394 plus % of turnover (min. 0.10% max. 0.25%)	7 436	49 578 plus % of turnover (min. 0.20% max. 0.35%)	7 436	49 578 plus % of turnover (min. 0.20% max. 0.35%)
NL	363	1 724 if SMP : 890 454	363	862 if SMP: 925 000	363	2 042 if SMP: 923 443	726	2 904 if SMP: 1 231 106
A[18]	0	0	5 087	0.12% of turnover	5 087	0.12% of turnover	10 174	0.12% of turnover
P	9 976	9 976	9 976	9 976	9 976	9 976	19 952	19 952
FIN	0	0	0	0	0	0	0	0
S Notification[19]	0	- 115 for turnover <343 896 - 2 867 for turnover >343 896	0	- 115 for turnover <343 896 - 2 867 for turnover >343 896	0	- 115 for turnover <343 895 - 2 867 for turnover >343 895	0	- 115 for turnover <343 895 for each relevant activity - 2 867 for turnover >343 895 for each relevant activity
Licence	11 463	- 0.15% of turnover (min. 5 733) - Incumbent: extra 0.5% of voice telephony turnover (max 11 467 890)	11 463	- 0.15% of turnover (min. 5 733)	11 463	- 0.15% of turnover (min. 5 733) - Incumbent: extra 0.5% of voice telephony turnover (max 11 467 890)	22 926	- 0.15% of turnover for each relevant activity (min. 11 466) - Incumbent: extra 0.5% of voice telephony turnover (max 11 467 890)

Table 2 Administrative fees (cont'd)

	Public fixed voice telephony services (not including transmission capacity)		**Operation of public network and provision of network services** (not including voice services)		**Voice telephony on a self-operated network** (not including network services)		**Voice telephony and network services on a self-operated network**	
	Single payment	**Annual fee**	**Single payment**	**Annual fee**	**Single payment**	**Annual fee**	**Single payment**	**Annual fee**
UK[20]	59 975	- new entrants: 4 498 for the first two years, then 4 498 if turn. >7 496 768 - max 0.08% if turnover >7 496 768	59 975	new entrants: 4 498 for the first two years, then 4 498 if turn. >7 496 768 - max 0.08% if turnover >7 496 768	59 975	new entrants: 4 498 for the first two years, then 4 498 if turn. >7 496 768 - max 0.08% if turnover >7 496 768	59 975	new entrants: 4 498 for the first two years, then 4 498 if turn. >7 496 768 - max 0.08% if turnover >7 496 768

[15] Straight-line distance between the points to be connected.

[16] According to the General Telecommunications Act, the exact amount of the annual fees (percentage value) will be fixed every year by Parliament, taking into account the need to cover the administrative costs of the licensing management and controls system. The annual fees cannot be higher than 2‰ . For 1999 the value set is 0.15%.

[17] An annual fee of 0.35‰ of the relevant turnover is payable to contribute to the overall costs of the regulator.

[18] For all types of operator, an annual fee (depending on turnover and market share) is payable to contribute to the overall costs of the regulator. The annual percentage varies between 0.1% and 0.2% of the Austrian turnover. In 1999 it was 0.12%.

[19] A licence is required if an operator's activity is considered "significant" regarding the area of distribution, the number of users and similar factors. These operators typically have a market share of 10-15% (never less than 5%).

[20] Fees for public telecommunications operator (PTO) licence.

Table 3 Numbering fees (€)

(**S** = one-off fee; **A** = annual fee; where relevant: **S(r)/A(r)** = one-off/annual fee in case of allocation of a number that had been reserved before)

	B	**DK**	**D**[15]	**E**	**FIN**	**F**	**I**	**L**	**NL**
Standard telephone numbers (E.164)	per block of 10 000 numbers **S:** 381.76 **A:** 128.9	per number (8-digit numbers) **A:** 0.2644	per block of 1 000 10-digit numbers **S:** 512.91 per block of 1 000 11-digit numbers **S:** 51.13	per number **A:** 0.03	per number **A:** 0.34	per number **A:** 0.0228 reservation **A:** 0.0114	per number **A:** 0.01 reservation **A:** 0.005	per number part of a block of 10 000 numbers **S:** 0.12 **A:** 0.12 per number in amount < a block: **S** 61 97 + n*0.24 **A:** 61 97 + n*0.24	per number **S:** 0.027 **A:** 0.022 reservation **S:** 0.027 **A:** 0.009
Carrier selection code	4 digits **S**: 1 266.74 **A**: 12 657.44	4 digits **A:** 2 644.42 5 digits **A:** 264.44	4 digits **S:** 512.91	per number **A:** 0.03 x a factor indicating the number of 8-digit numbers occupied in the numbering plan	**International** **A**: 3 digits 92 503 **A:** 4 digits 18 501 **A:** 5 digits 3 700 **Long distance** **A:** 3 digits 92 503 **A:** 4 digits 18 501 **A:** 5 digits 3 700	**reservation** **A:** 4 digits 22 867 **A:** 1 digit 228 674 **allocation** **A:** 4 digits 45 734 **A:**1 digit 457 347	**reservation** **A:** 4 digits 51 640 **A:**5 digits 25 820 **allocation** **A:** 4 digits 103 280 **A:** 5 digits 51 640	**S:** 1 239 **A:** 1 239	**reservation** **S** 908 **A:** 227 **allocation** **S:** 908 **S(r):** 454 **A:** 454
International Signalling Point Codes (for international interconnection)	**S:** 381.76 **A:** 12 657.44	**A:** 26 444	**S:** 383		**A:** 1 682			**S:** 991 **A:** 495	**reservation** **S:** 908 **A:** 227 **allocation** **S:** 908 **S(r):** 454 **A:** 454
National Signalling Point Codes (for national interconnection)	**S:** 381.76 **A:** 0		**S:** 192		per group of 10 codes **A:** 34			**S:** 991 **A:** 495	**reservation** **S:** 908 **A:** 227 **allocation** **S:** 908 **S(r):** 454 **A:** 454

[15] Numbers taken into use after July 1997.

Table 4: Fees/charges for VSAT networks (August 2000, €)

Fees for VSAT networks and services in the 200 kHz-1 MHz band, up to 100 stations, bi-directional, with/without frequency coordination, with PSTN connection.

	INITIAL (ONE-OFF) FEES/CHARGES	ANNUAL FEES/CHARGES
B	**Administrative fees**: €770.95 (€1 797.23 with frequency coordination)	**Frequency fees** per station: €515.62
DK	**Administrative fees**: 0 **Frequency fees**: 0	**Administrative fees** per station: €14.75 **Frequency fees** per station: €23.26
D	**Administrative fees**: €7 665 for the network licence (Class 2) **Frequency fees** : €15	**Frequency fees** per station: € 17
EL	**Administrative fees** per station: €960.63 (hub station) €96.63 (peripheral station)	**Frequency fees** per station: €640.42 (hub station) €96.6 (peripheral station)
E	**Administrative fees**: €60 for the network licence	**Frequency fees** per station: 0.15% of turnover per bandwidth (per station): €1.07 per kHz (minimum €60)
F	**Administrative fees**: €3 811 up to 4 stations €6 098 from 5 stations	**Administrative fees**: €457 up to 4 stations €1 524 from 5 to 300 stations **Frequency fees** per station: € 76
IRL	**Administrative fees**: 0 **Frequency fees**: 0	**Administrative fees**: 0 **Frequency fees**: 0
I	**Administrative fees**: €516 for the service licence (€2 064 with frequency coordination) €516 for the network licence **Frequency fees**: €2 064 for up to 10 stations €5 160 for 11 to 100 stations	**Frequency fees** Per station: €103 per bandwidth: €5 160
L	**Administrative fees**: €6 197 for the network licence **Frequency fees**: €6 448	**Administrative fees**: €12 394 + 0.10%-0.25% of turnover[21] for the network licence
NL	**Administrative fees**: €363 (registration for the network) **Frequency fees**: €545 (€1 090 with frequency coordination)	**Administrative fees**: €2042 (registration for network) **Frequency fees** per station: €472
A	**Administrative fees**: €98 (€196 with frequency coordination)	**Frequency fees** per station: from €174 to €7 849 according to power [22]
P	**Administrative fees**: €10 175.5 for licensing and registration of a public network €7 481.97 for registration of provision of a public telecommunications service **Frequency fees** €166.47 for each station licensing not needing coordination €499.45 for each station licensing requiring coordination	**Administrative fees**: €10 175.5 for licensing and registration of a public network €7 481.97 for registration of provision of a public telecommunications service **Frequency fees** €332.94 for each station licensing not needing coordination €999.9 for each station licensing requiring coordination
FIN	**Frequency fees** per station: €148 in case of frequency coordination	**Frequency fees** per station: €60.5

Table 4 (cont'd)

S	**Administrative fees** : 0 **Frequency fees:** 0	**Frequency fees** per station: €573.16
UK[23]	**Administrative fees**: €8 996.12 for the licence	**Administrative fees**: €4 498.1 (renewable licence fee) **Frequency fees** per station (hub stations): €1 499.35 up to 100 kHz €7 496.77 between 100 kHz and 2 MHz (peripheral stations): €2 298.71 up to 20 stations; €8 996.12 from 21 to 100 stations

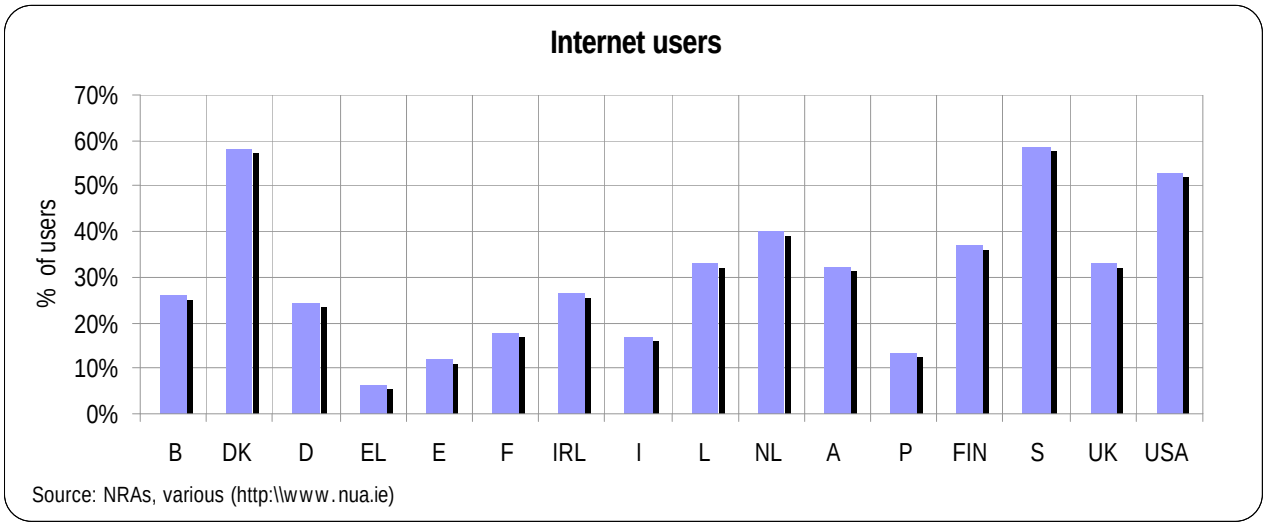
[21] The minimum percentage of 0.10% is applied for turnovers of up to €12 394 000; the highest percentage of 0.25%is applied to turnovers of greater than €123 940 000.

[22] Monthly fees per station vary as follows: €14 if < 1 Watt; €35 if 1-6 Watt; €50 if 6-30 Watt; €109 if 30-150 Watt; €327 if 150-1000 Watt; €654 if > 1000 Watt.

[23] In addition to those authorisations under the Telecommunications Act 1984, The Radiocommunications Agency charges fees for frequencies and terminals.

1. INTERNET MARKET DATA

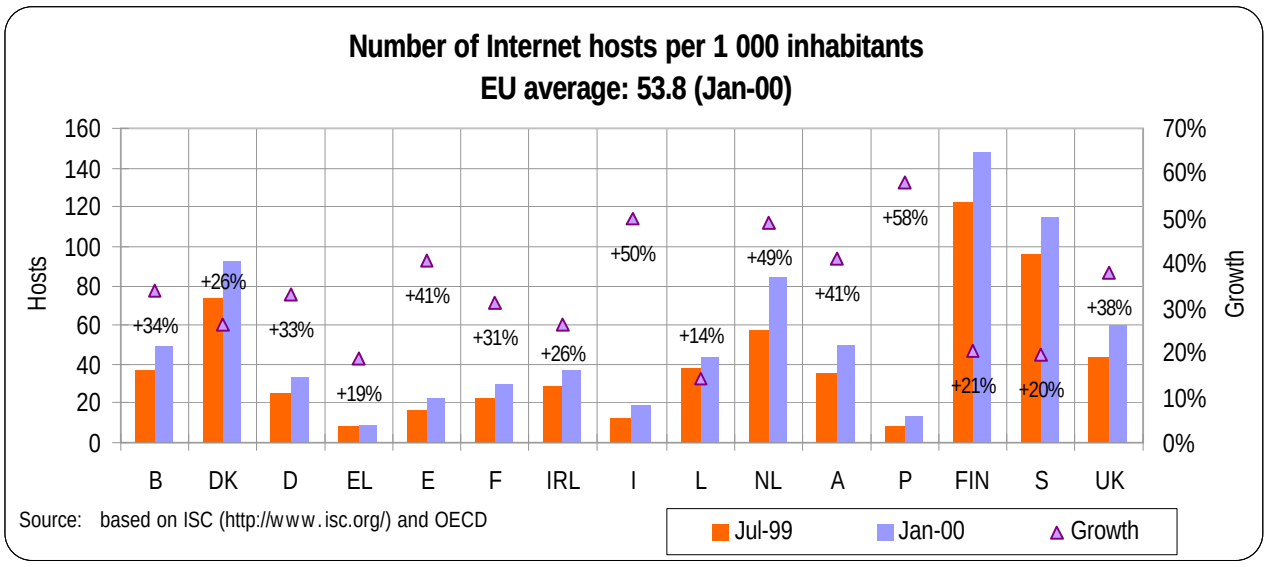
Chart 1



The figures in the chart are based on data collected from non-standardised sources and should therefore be treated as indicative estimates. In particular, the definition of a "user", i.e. a person having access to the Internet either at home or at his place of work or education, might be interpreted in slightly different ways.

The data reflect the situation in July/August/September, with the exception of DK (April), I and E (May.)

Chart 2



Estimate of penetration of Internet services in the EU based on the number of Internet hosts (ccTLD and estimates of gTLD) per 1 000 inhabitants.

An Internet host is defined as a domain name with an associated Internet Protocol address record, and has become a standard indicator used by many studies of the growth and spread of the Internet. Although hosts range from a single desktop computer to powerful servers acting as multiple "virtual" hosts, this measure gives a rough indication of the minimum size of the Internet.

The Internet hosts considered are those registered using either a country Top Level Domain name (ccTLD) such as ".be" or ".dk", or a generic Top Level Domain name (gTLD) such as ".com". In accordance with the Internet Software Consortium's (ISC) methodology, Internet hosts under gTLD ".com", ".org" and ".net" have been assigned to EU Member States on the basis of the proportion of total gTLD registered by users in each country. However, there is no straightforward means of assigning these Internet hosts to geographic locations, particularly at the subnational level, as there is not necessarily any correlation between a host's domain name and its physical location. For instance, a host with a ".be" domain name could be located in the USA or any other country. Likewise, hosts under domains ".com", ".org" and ".net" could be located anywhere.

Chart 3

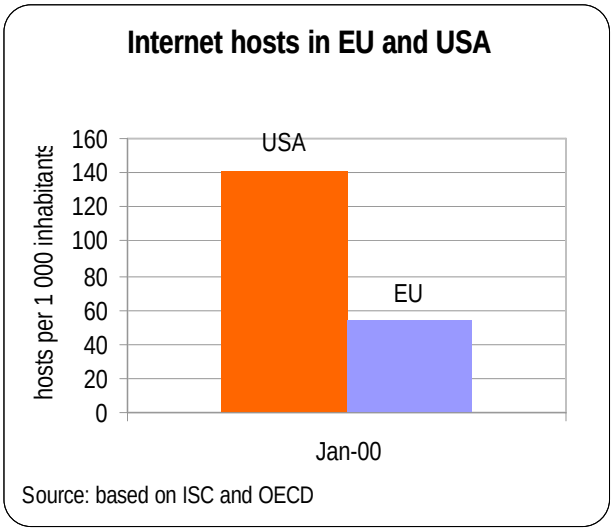
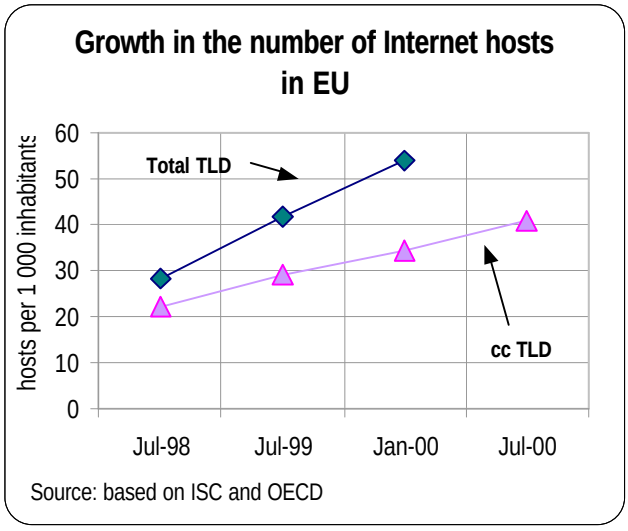


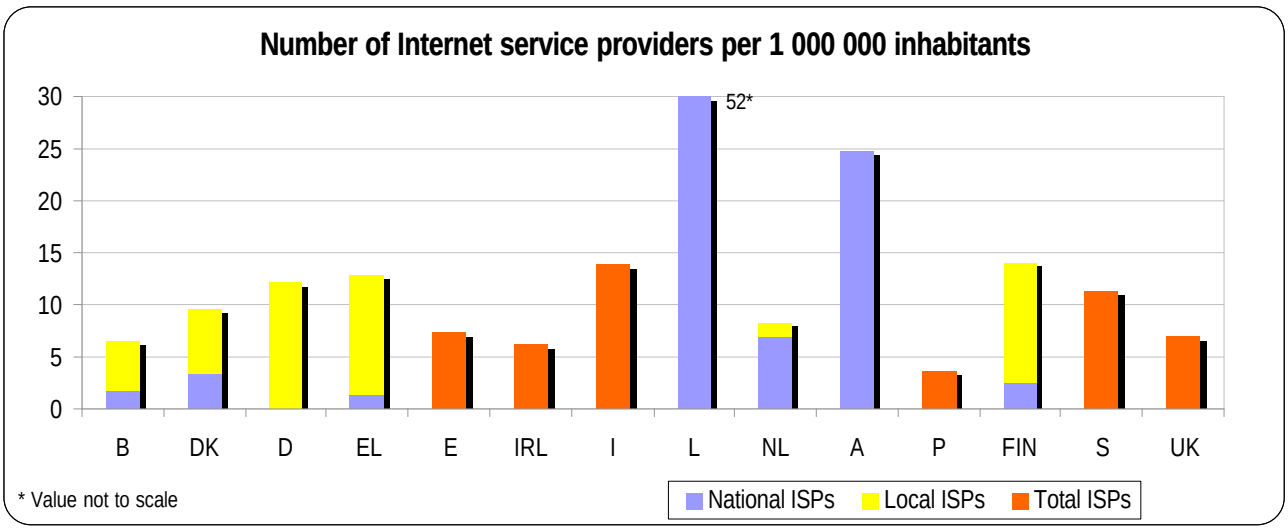
Chart 4



Number of Internet hosts in EU and USA as of January 2000 and growth in the number of hosts since July 1998.

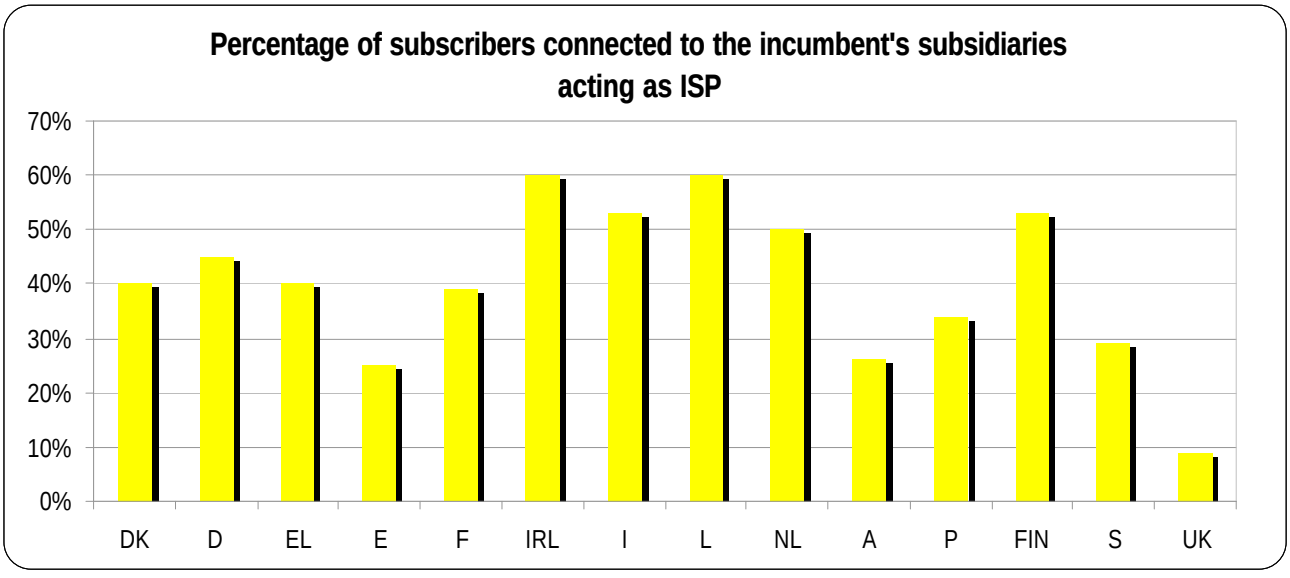
2. INTERNET SERVICE PROVIDERS (ISP)

Chart 5



These figures are provided by the NRAs. The number of national ISPs in D is not available. In six cases no distinction could be made between ISPs operating locally and those operating nation-wide. No information is available for F.

Chart 6



Percentage of subscribers connected to an ISP which is a subsidiary of the incumbent.
These figures are estimates provided by the NRAs, with the exception of DK and B. No information is available for the latter country.

The following ISPs are considered to be subsidiaries of the incumbent: in NL, Het Net, XS4all and Planet Internet; in F, Wanadoo and Oléane; in IRL, eircom.net and Indigo; in FIN, Sonera; in UK, Clickfree and BT Internet.

3. INTERNET ACCESS PRICING

This section deals with the cost of Internet usage for a residential user and relies on the OECD basket methodology[1].

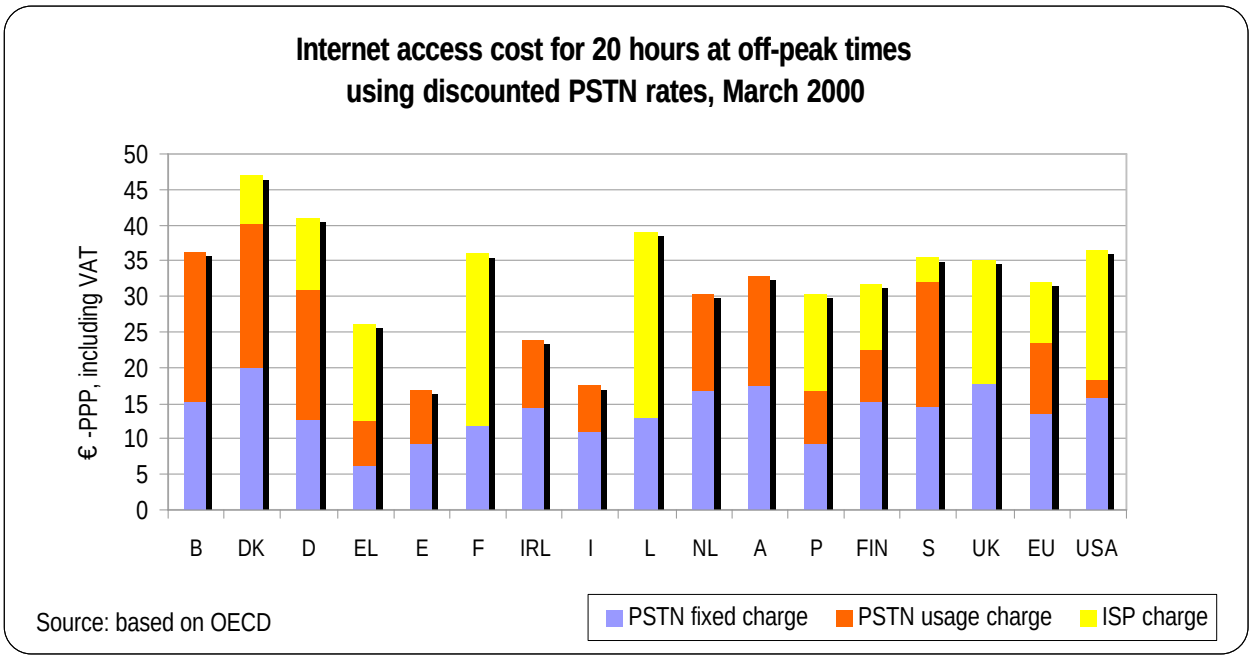
Internet usage is defined in blocks of 20 and 40 hours. For 20 hours of usage, the price is the equivalent of 20 calls of one-hour duration at peak and off-peak rates.

The PSTN charges considered are discount schemes or special access number pricing applied by the incumbent operator for Internet connection. The ISP charge is the best available rate, from the incumbent operator, for the duration of service concerned (20 or 40 hours connection). Countries may have other telecommunications operators and ISPs that together may offer a less expensive package.

The cost of Internet usage includes:
- Fixed charge: the monthly rental for a residential user
- Usage charge: the price of the local telephone calls to an ISP for residential users
- ISP charge: the price of Internet access charged by the incumbent telecommunications operator acting as an ISP
- Discount scheme: the best available scheme for each basket selected
- Tax: value added tax (VAT) is included
-

The usage charges are calculated at either peak or off-peak rates, according to the following definitions:
-Peak rate: the price of a local call at 11:00 hours during weekdays
- Off-peak rate: the price of a local call at 20:00 hours during weekdays.

Chart 7



[1] *Local access pricing and e-commerce*, OECD, July 2000.

Chart 8

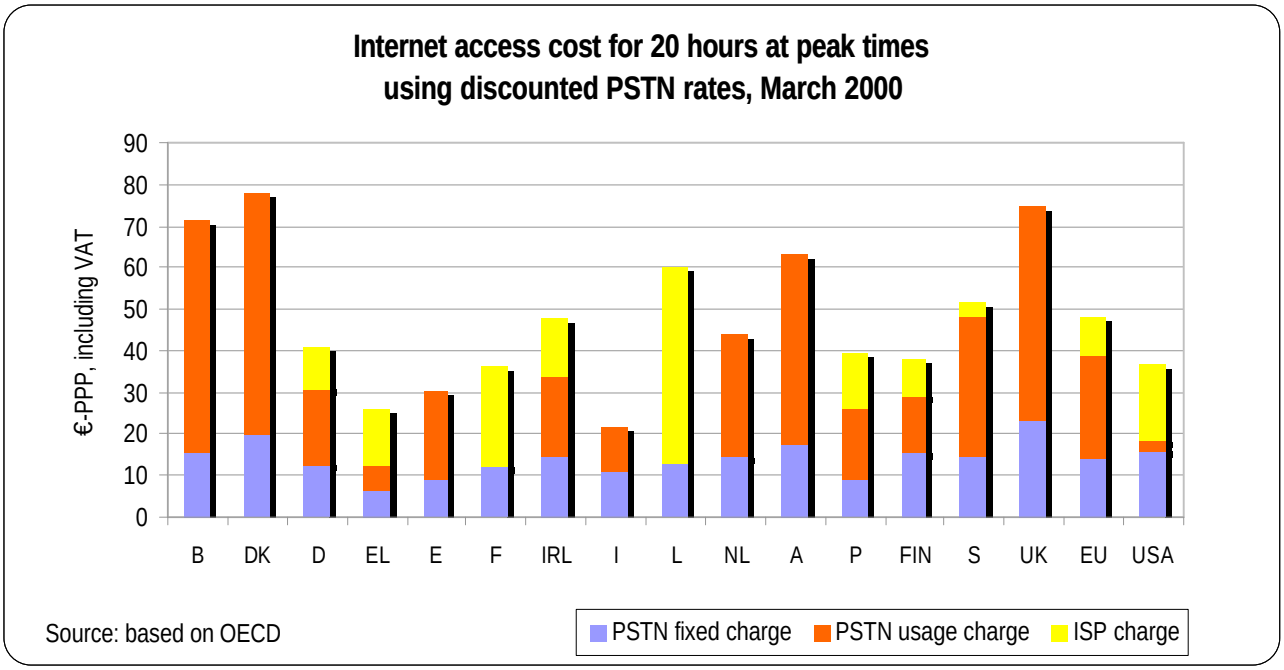


Chart 9

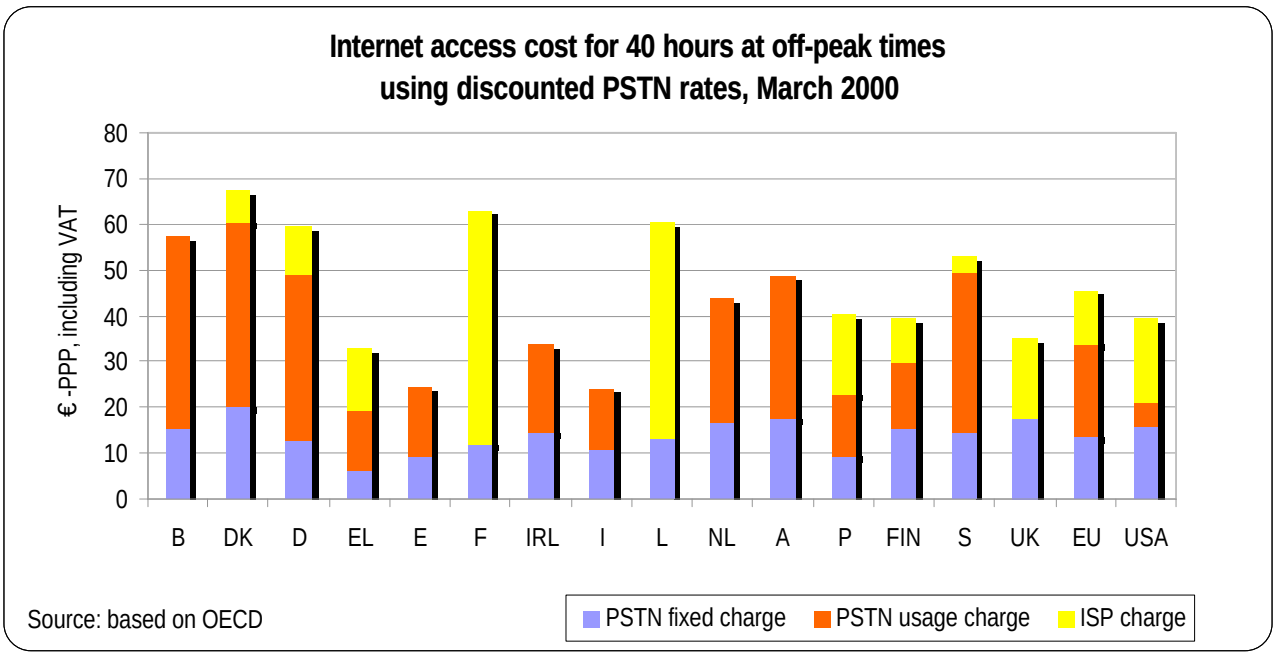
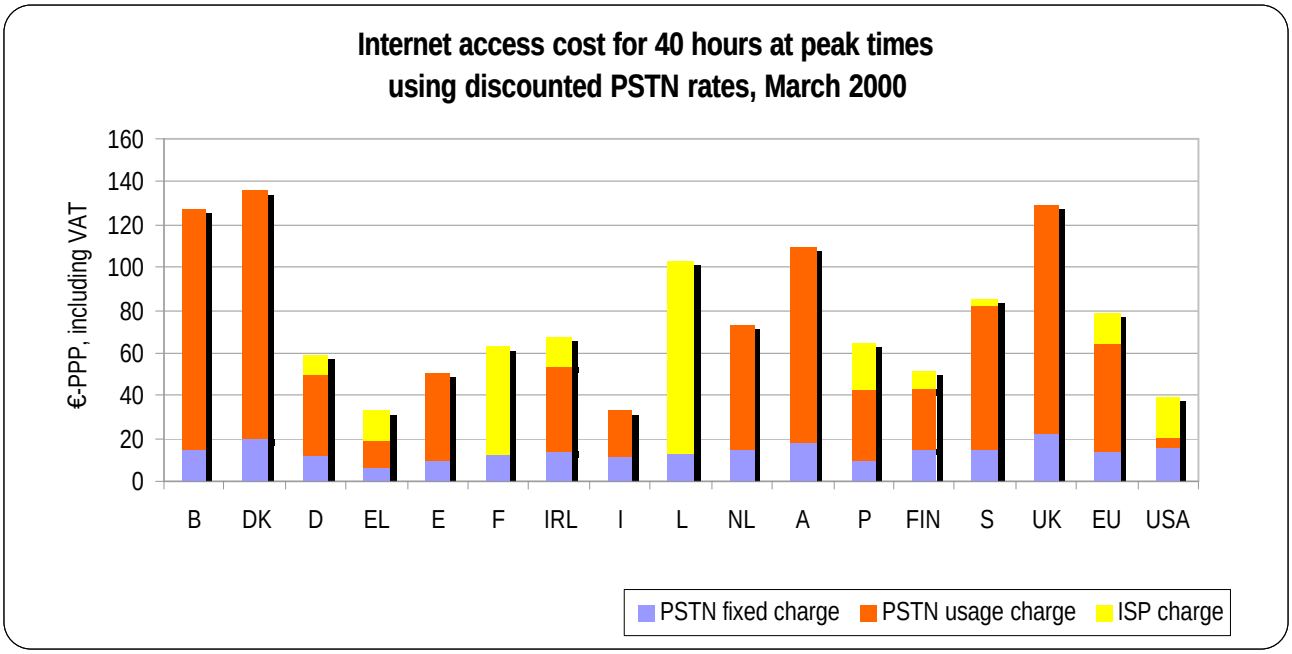


Chart 10


Internet access cost for 40 hours at peak times
using discounted PSTN rates, March 2000
€-PPP, including VAT
160
140
120
100
80
60
40
20
0
B
DK
D
EL
E
F
IRL
I
L
NL
A
P
FIN
S
UK
EU
USA
PSTN fixed charge
PSTN usage charge
ISP charge

APPENDIX

EURO EXCHANGE RATES

This section explains the exchange rates used in the "Telecommunications market data" and "Regulatory issues: complementary data" annexes. For countries belonging to the EMU, the official exchange rates are stated.

1. EXCHANGE RATE USED IN THE SECTIONS ON PUBLIC VOICE TELEPHONY, MOBILE SERVICES AND LEASED LINE TARIFFS IN THE "TELECOMMUNICATIONS MARKET DATA" ANNEX

Retail tariffs have been compared using the euro exchange rate expressed in terms of purchasing power parities (€-PPP), in order to compare retail prices between Member States in real terms.

PPPs are widely used by international organisations as an alternative to monetary exchange rates when making international economic comparisons. They are, in effect, "real" exchange rates, based on a comparison of the relative purchasing power of each country's currency.

Purchasing power parities equate the purchasing power of different currencies. This means that a given sum of money, when converted into different currencies at the PPP rates, will buy the same basket of goods and services in all countries, thus eliminating differences in retail price levels between countries.

The €-PPP exchange rates listed below have been calculated using the OECD's Comparative Price Levels information for May 2000. In order to make comparisons between European Member States more significant, the €-PPP has been set up, using the Austrian schilling as the reference currency (because its annual rate of inflation in June 2000 is estimated to be broadly in line with the average inflation rate in the EU).

The use of €-PPP does not reflect differences in the underlying costs of providing services. The use of PPP should be limited to international comparisons.

Table 1: Exchange rates August 2000, national currency to Euro

	Exchange rate to euro	
	EURO	EURO PPP
Belgium	0.02479	0.02609
Denmark	0.13407	0.10812
Germany	0.51130	0.51130
Greece	0.00297	0.00385
Spain	0.00601	0.00761
France	0.15245	0.15245
Ireland	1.26968	1.38009
Italy	0.00052	0.00060
Luxembourg	0.02479	0.02582
The Netherlands	0.45378	0.48275
Austria	0.07267	0.07267
Portugal	0.00499	0.00703
Finland	0.16819	0.14884
Sweden	0.11914	0.10012
UK	1.65782	1.40494
USA	1.10132	1.01039
Japan	0.01015	0.00573

2. EXCHANGE RATES USED IN THE SECTION ON LICENSING IN THE "TELECOMMUNICATIONS MARKET DATA" ANNEX

The exchange rates used for the licence fees in the public voice telephony and networks section are the same as in Table 1, except for the following:

	EURO
Denmark	0.130904991
Greece	0.0032021
Sweden	1.146319
United Kingdom	1.4993537

3. EXCHANGE RATES USED IN THE SECTION ON INTERCONNECTION IN THE "TELECOMMUNICATIONS MARKET DATA" ANNEX

The exchange rates used for interconnection charges are the same as in Table 1, except for the following:

	EURO
Denmark	0.1342
Greece	0.0029
Sweden	1.1337
United Kingdom	1.6611

4. EXCHANGE RATES USED IN THE SECTION ON INTERNET (INTERNET ACCESS PRICING) IN THE "TELECOMMUNICATIONS MARKET DATA" ANNEX

The OECD figures expressed in USD have been converted into euro using the average exchange rate calculated over the period from January to March 2000. This exchange rate is: 1.014919.

The €-PPP have been calculated using the OECD's Comparative Price Levels information for May 2000.

5. EXCHANGE RATES USED IN THE SECTIONS ON LOCAL ACCESS AND NATIONAL REGULATORY AUTHORITIES IN THE "REGULATORY ISSUES: COMPLEMENTARY DATA" ANNEX

The exchange rates used are the same as in Table 1, except for the following:

	EURO
Denmark	0.134203
Greece	0.002988
Sweden	0.119017
United Kingdom	1.638706

These exchange rates represent the average exchange rates calculated over the period January-August 2000.

6. EXCHANGE RATES USED IN THE SECTION ON CONSUMER ISSUES (BILLING) IN THE "REGULATORY ISSUES: COMPLEMENTARY DATA" ANNEX

The exchange rates used by Cullen International are the following:

	EURO
Denmark	0.1343
Greece	0.0029
Sweden	0.1170
United Kingdom	1.73

BELGIUM

OVERVIEW

The Fifth Report noted weaknesses in several areas, including the absence of legislation and the position of the national regulatory authority. Problems were noted regarding number portability, interconnection, licensing, cost accounting and rights of way. Since then there have been a number of regulatory developments intended to improve the situation on the Belgian market. The authorities have adopted long-awaited legislation (e.g. on numbering), and have amended existing legislation, particularly in the areas of licensing and interconnection, to bring it into conformity with Community legislation. In general, market players indicate that the overall regulatory climate has improved. However, they still fear possible conflicts of interest of the Belgian Minister for Telecommunications and Public Undertakings, who is at the same time head of the regulator and responsible for the Government's shareholding in Belgacom. There has been little improvement regarding the burdensome procedure for obtaining or amending individual licences, and the question of rights of way continues to be problematic. The NRA (Institut belge des services postaux et des télécommunications/Belgisch Instituut voor Postdiensten en Telecommunicatie - IBPT/BIPT) has tried, where possible, to respond to market developments, and contacts between IBPT/BIPT and market players, notably new entrants, have improved.

Competition is progressing steadily, with a total of 42 market players licensed as network operators and/or providers of voice telephony. Internet penetration has increased significantly: 26% of the population were Internet users in August 2000, and the number of Internet hosts increased by 34% in the last six months of 1999. In revenue terms, the estimated growth of the total telecommunications market for 2000 is 10%, just above the EU average. This growth is mainly accounted for by growth in the mobile market. In August 2000 mobile penetration had increased to 39% (22% last year, based on the number of subscribers). The largest mobile operator has a 64% market share, the second operator 31% and the third operator 5%. Voice telephony tariffs for long-distance calls have come down 23-31% (depending on the length of the call), but are still well above the EU average. Tariffs for local calls, particularly long calls, have gone up, and are also above the EU average. In the fixed long-distance and international markets, the incumbent's market share has gone down, which is not the case for the local calls market.

NATIONAL REGULATORY AUTHORITY

The Fifth Report noted that IBPT/BIPT was perceived as being weak, lacked sufficient powers to act and, where it did have the requisite powers, was reluctant or unable to act. The fact that the Minister was simultaneously responsible for the NRA, telecommunications policy and the incumbent (the State has a majority holding in Belgacom) led to fears of potential conflicts of interest.

The Minister is the head and legal representative of IBPT/BIPT, although its day-to-day management is delegated to a Managing Director. All formal decisions are taken by the Minister, who is answerable to the Belgian Parliament, on the basis of proposals drawn up by IBPT/BIPT. The authorities claim that IBPT/BIPT's current statutory position is in conformity with the regulatory framework, and that there are sufficient guarantees of the separation of tasks. A cooperation protocol between the Cabinet of the Minister (hereafter "the Ministry") and IBPT/BIPT is currently

being drafted. It is the intention that this protocol will clearly describe which authority is responsible for certain decisions. In addition, the Minister has started a review of IBPT/BIPT, which will concentrate on its statutory position and its organisation. The resulting reform is expected to be finalised in the course of 2001.

For the moment, however, there has been no change in new entrants' perception of the way the regulatory authorities work, nor any decline in the fears expressed by them that the concentration of ministerial, regulatory and shareholder functions in the same hands may lead to conflicts of interest. Moreover, according to new entrants, recent developments show increased involvement of the Ministry and, as a consequence, reduced involvement of IBPT/BIPT officials.

New entrants say that a relatively weak IBPT/BIPT clearly benefits Belgacom. The increased involvement of the Ministry has led to delayed and non-transparent policy decisions, which to the new entrants quite often seem to be a political compromise. The Ministry claims that a series of decisions taken clearly show that Belgacom does not receive favourable treatment: the decision to hold a 3G auction, the decision to unbundle the local loop (including all three forms of unbundled access identified in the Commission's Recommendation), and the designation of the incumbent's mobile subsidiary as having significant market power in the national market for interconnection.

Since his appointment, the Minister has made statements about further privatisation of Belgacom - which would resolve the alleged conflict of interest - but no timeframe has so far been set.

New entrants welcome the consultations which IBPT/BIPT organises when it is preparing legislation, but they are disappointed by the lack of transparency.

The press, rather than IBPT/BIPT or the Ministry, appears to be the main source of information for most market players.

Although the market perceives IBPT/BIPT's human resources to be highly qualified, and cooperation with IBPT/BIPT has improved significantly over the past year, IBPT/BIPT acknowledges that it has recruitment problems, and agrees with new entrants that it is understaffed. IBPT/BIPT has occasionally informed operators that it was currently unable to deal with certain subjects due to lack of staff. IBPT/BIPT employs about thirty policy-making staff, and there is currently a lack of qualified and/or experienced persons on the market. Recruitment procedures are slow. New entrants have the impression that all important files are dealt with by a small group of people, and not by all thirty policy-making staff. The review of IBPT/BIPT will include an examination of its resources.

LICENSING

The procedures for obtaining a licence are still reported to be very cumbersome: operators have to provide extensive information; even after obtaining a licence they are subject to onerous reporting requirements. However, there have also been reports of satisfaction with IBPT/BIPT's work in this area, especially the use of electronic means of communication for reporting. Although operators appear to resign themselves to the strict and cumbersome procedures once they have obtained a licence, new entrants believe that the procedures make operators reluctant to enter the Belgian market.

There have been some major improvements since the Fifth Report. The mandatory contribution to research and development has been abolished, and interconnection prices no longer differentiate between holders of service licences and network licences. A Royal Decree reducing the waiting time

for a licence to six weeks, in accordance with the Licensing Directive (the average time taken to obtain a licence is currently three months), and reducing the period which the business plan is required to cover from fifteen to five years is expected to be published shortly (it was adopted by the Council of Ministers on 14 July 2000, and the Council of State has already delivered its opinion). Market players still question the justification for the requirement to make a new licence application when extending geographical coverage (there is at present only one operator with national coverage). IBPT/BIPT says that it would prefer to issue only national licences, but that local authorities more readily accept the exercise of rights of way by holders of geographically limited licences than by holders of national licenses. IBPT/BIPT claims that the fact that there are now about thirty network licences and about thirty voice telephony licences indicates that the requirement to request an extension of the geographical coverage of the licence does not pose significant problems.

Market players say that the authorities failed to prepare the third-generation (3G) mobile telephony licensing procedure by the deadline of 1 January 2000. Market players had stressed the need for a rapid decision on the procedure to allow them sufficient time to decide whether or not to participate. The Minister decided on the procedure in September 2000; the Government had already indicated that the licences would be issued before the end of 2000.

Alternative operators say that the Ministry delayed the legislation on wireless local loop (WLL) licences several times before its publication in August. IBPT/BIPT postponed the start of the licensing procedure for at least two months (from the end of October to the end of December) because the Ministry was at the time of publication still considering the site-sharing conditions for infrastructure for mobile telephony - which also have an impact on WLL infrastructure (as the conditions have to be in line with those for 3G licensing) - in the light of the 3G legislation. The refusal by the Council of State to allow the imposition of roaming and site sharing obligations by means of a Royal Decree (secondary legislation) might delay the procedure further, because primary legislation will now have to drafted. The WLL legislation gives preference to operators who plan extensive geographical coverage, which, new entrants point out, clearly suits Belgacom. IBPT/BIPT says that while this is certainly true, there will be seven or eight licences, which means there is enough room for other operators to enter the WLL market in competition with the incumbent.

INTERCONNECTION

The methodology used for the reference interconnection offer for 2000 (BRIO 2000) is reported by the market to be much improved by comparison with the procedure used for BRIO 1999. The new entrants joined forces in the negotiations, enabling them to be more effective. IBPT/BIPT is said to have done an excellent job in consulting operators on the initial offer made by Belgacom, but new entrants regret that they normally only have limited time to respond to the offer (a few weeks, whereas the incumbent has several months to prepare it). Also, the final offer approved by the Minister (although, as new entrants pointed out, the law clearly states that it is to be approved by IBPT/BIPT) did not take account of all suggestions made by IBPT/BIPT, for reasons which are not clear to new entrants. New entrants regretted that written questions from them to IBPT/BIPT on the approved BRIO 2000 had not been answered by July 2000, but those issues have now been taken into account in the negotiations for the BRIO 2001.

BRIO 2000 was not approved until December 1999, a few weeks before its entry into force. This left little time for operators to make the necessary (technical) adjustments. IBPT/BIPT intends to have BRIO 2001 approved in October 2000.

The scope of BRIO 2000 is significantly greater than that of the 1999 offer, but it still includes neither ADSL/bitstream access nor certain value added services (0908 and 0909 transit services).

Moreover, new entrants regret that no information has been provided on the cost base for interconnection, which is needed to show that interconnection is cost-oriented. For example, the costs of interconnection links decreased by 20% in June 2000, but BRIO indicated that no cost studies had been carried out on these links, so it is unclear to new entrants on what data the most recent reduction was based. However, information on the cost model used is provided on IBPT/BIPT's web site. Furthermore, new entrants comment that there are still no service level agreements (SLAs) for interconnection, although the incumbent claims that a basic SLA is in place. IBPT/BIPT has announced that SLAs will be annexed to BRIO 2001.

Negotiations between the incumbent and new entrants on the standard interconnection agreement have reached a deadlock, and new entrants say that IBPT/BIPT has not used the powers in the Interconnection Directive to intervene on its own initiative. IBPT/BIPT has pointed out that it prefers to respect commercial negotiations, but that it had intervened immediately in those cases where an operator had formally requested it to do so. New entrants also reported that the forecasting and ordering procedures for interconnection capacity are very cumbersome and inflexible, and that the penalties imposed unilaterally by Belgacom for failure to meet forecasts are excessive. Belgacom says that it is also subject to penalties in case of non-delivery, which are included in the standard interconnection agreement - the same agreement on which negotiations have reached a deadlock according to the new entrants. The other licensed operators also have difficulty understanding why the forecasting system for interconnection links is more complex than the system for leased lines, as there are capacity problems with both.

The Fifth Report noted that the Belgian authorities anticipated that most of the problems market players were complaining about would end once the Chamber of interconnection, leased lines, special access and shared use (the Chamber) was in place. The Chamber is now in place, but Belgacom has challenged the validity of the Decree setting it up, which was adopted in October 1999. Until the Council of State delivers its ruling on this appeal (which does not suspend the validity of the Decree), alternative operators are reluctant to refer disputes to the Chamber for settlement, as the validity of its decisions is uncertain. So far, four issues have been referred to the Chamber, of which one has been withdrawn, a second declared inadmissible, and a third has led to a decision, while the fourth is still being examined. IBPT/BIPT regrets that Belgacom has taken this course of action, and says that it fears that the incumbent might take all possible steps to challenge the establishment of the Chamber. The powers of the Chamber are more limited than some operators had hoped: since, under Belgian law, all disputes regarding civil rights - which covers all rights and obligations resulting from contracts - come under the exclusive jurisdiction of civil courts, they cannot be dealt with by the Chamber, which can therefore only deal with cases in which the parties have failed to sign contracts.

New entrants have reported that the retail tariffs for fixed-to-mobile calls are very high in Belgium, and that this is because of the high interconnection charges for the termination of calls charged by the mobile operators. In October 2000 Belgacom Mobile (Proximus) was designated as an operator with significant market power in the national market for interconnection, in accordance with the Interconnection Directive. Notified operators have to follow the principle of cost orientation, which will bring down the interconnection charges.

LOCAL ACCESS

The Fifth Report noted that the regulator did not regard local loop unbundling (LLU) as an urgent matter, because of the availability of an alternative: the cable network. Much has changed since then. On 30 March, just after the Lisbon European Council, the Minister announced that LLU would be addressed seriously. IBPT/BIPT has held a consultation on the issue, and on 6 October the Council of Ministers adopted a Royal Decree on LLU. Notified operators will be obliged to offer all three

forms of unbundled access referred to in the Commission Recommendation on unbundled access from 31 December 2000. The new legislation will enter into force immediately after the Regulation on unbundled access has been adopted by the Council and European Parliament. The Minister has stated in the past that he also intends to require unbundled access to cable networks.

In the meantime, on 24 August 2000, Belgacom announced that it would offer unbundled access to its local loop in the last quarter of 2000, in advance of any regulatory requirement for it to do so. New entrants have responded cautiously to this announcement, and are awaiting the actual offer, which will have to be in line with the coming legislation.

New entrants stress the need for all three forms of unbundling (full unbundling, shared access, and bitstream access), as different kinds of unbundling suit different sorts of operators. The incumbent is particularly unhappy about the shared access option, as it fears spectrum management problems. It also claims that LLU is not the way to increase competition in the local access network, because alternative technologies are available and LLU will limit investment in infrastructure. All three forms of unbundling will be mandated by the Royal Decree. Disputes concerning unbundling will be referred to the Chamber for Interconnection, special access, leased lines and shared use.

The other alternative local infrastructure, the wireless local loop (WLL), is still only at an experimental stage. The legislation, which was in preparation at the time of the Fifth Report, has now been published. However, the actual licensing procedure has been delayed because of legislative changes on antenna site sharing. New entrants wonder whether the procedure will take place before the end of the year. There will be seven or eight WLL licences in Belgium, but currently it is not yet an alternative local access network.

CATV penetration is very high in Belgium, and one CATV operator already offers voice telephony services, but by the end of 1999 the number of subscriptions was still very small. Other CATV operators offer Internet access only, but not voice telephony services.

The incumbent has had an ADSL retail offer on the market since April 1999. Only in March 2000 did the new entrants receive an ADSL wholesale offer (adapted version in May). New entrants find the wholesale offer unacceptable for a variety of reasons. According to them, there seems to be no relationship between Belgacom's retail offer and its wholesale offer. It is not clear if either the retail prices or the wholesale prices are cost-based: in any case, alternative operators find it hard to match the retail tariffs offered by Belgacom. In addition, the wholesale offer is limited to fast Internet access, but Belgacom's own retail service is much broader. IBPT/BIPT has already intervened on several occasions in order to achieve a better offer from Belgacom. Progress has been made in this regard.

UNIVERSAL SERVICE/CONSUMER/USERS

New legislation on the costing methodology for universal service has been adopted since the Fifth Report. The universal service provider has not activated the universal service fund for 2000. The provider feels that the scope of the universal service in Belgium is too broad. New entrants, however, want a different approach to universal service, as they would prefer to have the service "unbundled", allowing different operators to provide different service elements, to minimise the costs involved and to stimulate efficiency and innovation. They also want to see "geographic unbundling" introduced (operators offering universal service only in particular regions). New entrants fear "contamination" between universal service and interconnection, i.e. the raising of interconnection tariffs to secure the universal service and thereby eliminate the need to activate the fund. New entrants fear that IBPT/BIPT has no idea how to control this issue, but IBPT/BIPT has pointed out

that the latest fall in interconnection tariffs brought the single transit tariff within the European benchmark range. Moreover, IBPT/BIPT indicated that all universal service elements are excluded from the costs that are taken into account for the determination of interconnection tariffs. The Ministry is currently in the process of reviewing the universal service system, including the scope of the universal service and social tariffs. It is concerned to ensure that market distortions are excluded.

IBPT/BIPT regularly discusses the provision and the costs of the universal service with the provider, and also verifies whether the provider has met its obligations (e.g. it has concluded that there are currently not enough public telephones in Belgium which accept both cash and phone cards).

All operators have resorted to sophisticated ways of "customising" and "packaging" their services to entice the consumer. This is the only way for new entrants to differentiate their services. It is acknowledged that these packages can blur tariff reductions and can be difficult for the consumer to understand. New entrants claim that Belgacom continues to have an advantage over them as its total portfolio is larger, and it does not offer new entrants all the services it offers itself.

MOBILE SERVICES INCLUDING THIRD GENERATION AND ROAMING

The regulatory framework for 3G licensing was finalised very late (in September 2000, whereas the UMTS Decision required it to be in place by 1 January 2000). New entrants say that as a result companies intending to participate have to make their final decision in a short time. The Ministry has indicated that the whole licensing procedure, including the actual issuing of licences, will be completed by the end of 2000. Licences will be granted by means of an auction, but obligations on site-sharing and national roaming will be imposed through the licences. Roaming between 3G and 2G should in the first instance be commercially negotiated, as is currently also the case for national roaming between existing 2G operators. Disputes can be referred to IBPT/BIPT, which can impose an agreement between a 2G operator who has obtained a 3G licence and a 3G licensee who does not have a 2G network, provided that it already covers a minimum of 20% of the population with its own 3G network. The new entrant's right to national roaming will be limited to eight years. There will be four 3G licences. Foreign and domestic bidders will have equal access. There are currently three GSM operators in Belgium, so at least one 3G licence will go to a new entrant. It is not clear whether the 3G systems will be operational by 2002, due to the late licensing procedure, but also to a possible lack of equipment anticipated by the Belgian authorities. Also, in October the Council of State refused to allow obligations on roaming and site sharing to be imposed by a Royal Decree, insisting that this should be dealt with in primary rather than secondary legislation. This could delay the licensing procedure. Belgacom accepts that there is a scarcity of frequencies, but opposes auctioning, mainly because of the potentially high fees, which will come on top of the high roll-out costs resulting from the difficulty of finding sites and local taxes on antennas. Some of the 155 MHz of frequencies due to be allocated to the use of 3G services are still being used by the Ministry of Defence. The Ministry of Telecommunications expects that these frequencies will be effectively available on 1 January 2002.

There are no licensed mobile virtual network operators in Belgium.

Another comment made by new entrants relating to frequency management is that the very high fees for point-to-point (microwave) links (fees also only cover one-way traffic) mean that such links cannot be considered to be an alternative to leased lines in rural areas. New entrants had understood that the Ministry was prepared to reduce the fees, but it appears that no action has yet been taken. IBPT/BIPT has sent a proposal for the reduction of these fees to the Ministry.

TARIFFS

Belgacom sets its retail tariffs unilaterally, and, according to new entrants, they are not in practice sufficiently supervised by IBPT/BIPT or the Ministry. This is because the powers of IBPT/BIPT are legally limited when it comes to retail tariffs. IBPT/BIPT says that it is making the fullest possible use of its powers within the price cap system.

New entrants dislike the current price cap mechanism for retail tariffs, claiming that it gives Belgacom too much flexibility to adapt its tariffs to competitive pressure. However, according to IBPT/BIPT, there is nothing to suggest that the system fails to achieve its purpose, i.e. the affordability of universal service. Belgacom has to give one day's notice of retail tariff decreases and fifteen days' notice of increases. IBPT/BIPT is not in favour of ex ante approval of all Belgacom retail tariffs, which would be burdensome and bureaucratic. It pointed out that its published opinions on planned tariff decreases have in the past been used in court to counter tariff decreases leading to price squeezes (e.g. for Internet access tariffs).

New entrants say that there is still a price squeeze for local calls, because Belgacom's retail tariff scheme (based on the enlarged regional zones) is not in line with its tariff scheme for interconnection (which is still based on the old zone system). Belgacom's interconnection tariffs are in some cases higher than its retail tariffs, thereby preventing alternative operators from offering competitive retail tariffs to neighbouring zones. IBPT/BIPT expects the price squeeze effect to be reduced by the new BRIO 2001, which will have only one zone.

In September, Belgacom announced new retail tariffs to apply from 1 October 2000. A couple of new entrants initiated legal proceedings following this announcement, because Belgacom was not at the same time decreasing the interconnection tariff. The Ministry has approved IBPT/BIPT's recommendation, made at the end of September, that Belgacom's new retail tariffs could be approved on two conditions: that the new interconnection tariffs (BRIO 2001) are brought into force on 1 October, and that in November Belgacom makes carrier (pre-)selection available for local calls.

Belgacom says that its tariffs have not been fully rebalanced, that it still has an access deficit, and that the rebalancing of tariffs for leased lines is continuing. New entrants say that Belgacom's failure to fully rebalance its tariffs will raise problems for the correct pricing of ADSL and unbundled access to the local loop.

COST ACCOUNTING

Legislation on a cost-accounting model was not published until late 1999. New entrants say that the model is very limited, and that it is not clear whether it has been applied in areas other than voice traffic (interconnection, leased lines). IBPT/BIPT has not made available any of the specific cost accounting data provided by the incumbent, but has provided a clear description of the cost model used. New entrants claim that the information provided is too limited (i.e. they are not informed of the exact number of switches that Belgacom has). IBPT/BIPT, however, insists that it has provided sufficient information to make the procedure transparent, taking into account legal provisions and obligations relating to confidentiality. The regulator also says that compliance with the cost accounting systems has been verified (which would allow it to assess whether or not the incumbent is fulfilling the cost orientation obligation), although this is not clear to market players. In any event, although IBPT/BIPT claims there is compliance and even verification of compliance, no annual statement of compliance has been published for voice telephony or interconnection.

IBPT/BIPT is currently "building" a new cost accounting model, to be finalised next year; new entrants have indicated they would prefer a "bottom-up" model. In the meantime, new entrants emphasise that the current model has major deficiencies.

LEASED LINES

The inquiry conducted by the Directorate-General for Competition of the European Commission shows that the (1999) prices of leased lines in Belgium are above the EU average, at least for 2 Mbit/s. The prices of short-distance 34 Mbit/s leased lines are below the EU average, but the prices for longer distances - 50 and 200 km - are the highest in the EU. Prices for 2 Mbit/s leased lines have remained unchanged. The leased lines inquiry also referred to reports of unlawful discounting schemes, whereby Belgacom increased the discount offered after the client had received an offer from an alternative operator. New entrants also reported problems with the lead times for delivery of leased lines by the incumbent.

NUMBERING

Last year's report noted some problems with number portability (NP) and carrier pre-selection (CPS), as legislation was not yet in place and it was clear that the deadline of January 2000 would not be met. In the course of 2000, NP and CPS have become available, but it is clear that their introduction did not proceed smoothly, and market players are still struggling with the actual application and operational difficulties. These problems are addressed in a working group in which IBPT/BIPT plays an active role.

CPS for mobile calls was not introduced until the October-December period (it is covered by the BRIO 2000), and it is said that CPS (and CS) for local calls will be made available starting in November 2000, because of the change in the zonal system in the new BRIO. The costing of CPS is also included in the BRIO.

As regards number portability, there is great uncertainty about the cost of calls to and from ported numbers. Negotiations on the issue are continuing, and in the meantime alternative operators are refusing to settle invoices. A final decision by the Ministry on what the costs should be for an efficient operator is expected shortly, and until that decision becomes effective the costs are based on Belgacom indicators.

New entrants have questioned the method used by Belgacom to forward calls, which are often redirected via its own network and treated as interconnection (higher price). The administrative procedures introduced by Belgacom are said to be very burdensome and lead to a high percentage of "rejects". Belgacom says that it has encountered problems (slamming) when operators outsource their number portability operations.

New entrants also mentioned the lack of transparency of "explanatory notices" on the usage and reservation of numbers (issued by IBPT/BIPT), as changes are made without consultation (e.g. the change from "078" numbers to "0909" numbers for Internet dial-up access). IBPT/BIPT has explained that both number series exist in parallel, and that their use is optional.

RIGHTS OF WAY

The situation regarding rights of way has not changed since the Fifth Report, and for some operators this is the major bottleneck in Belgium. The Ministry and IBPT/BIPT are fully aware and understand the problems, but say that they are unable to find a solution, as the relevant powers rest with the local authorities.

In addition to the problem mentioned in last year's report of the different interpretations by the regional and federal authorities of the legislation assigning powers in respect of rights of way, the Flemish region is now preparing draft legislation directed at all operators/providers of "utilities" regarding a "rights of way permit". The fee already has to be paid, even though the legislation has not yet been finalised. In practice, a number of local authorities in Flanders are very slow when it comes to issuing permits for digging the streets for the installation of networks; operators depend on the cooperation of the local authorities, who impose additional (urban planning) permit requirements. Conditions for such permits are said to have included the provision of a cycle path or a public park.

It is becoming increasingly difficult to obtain building permits for infrastructure for mobile telephony (permits can be refused for environmental or health reasons), and antennas are also subject to municipal taxes. Municipal taxation could be a problem where a municipality itself owns telecommunications infrastructure (commonly CATV infrastructure). There is increasing cooperation between mobile operators, and this is considered to be essential for the future, because the deployment of 3G systems will require many more antennas than there are today. In addition there is the "health scare" problem, which the national authorities are trying to address at the moment.

DATA PROTECTION

The legislation transposing the Telecommunications Data Protection Directive is still not in full conformity: some provisions of the Directive have been transposed only partially.

National provisions are in place to ensure that providers of telecommunications networks and services take the necessary measures to safeguard network security, but these provisions do not mention the principle that these measures must ensure a level of security appropriate to the risk presented.

The provisions on the processing and storage of traffic data have been substantially transposed, and market players have expressed no concerns about these rules.

All operators have expressed concern about a draft decree on computer crime, which will require operators and service providers to keep calling (traffic) data for a maximum of 12 months. Market players consider this to be excessive as a general rule.

Legislation on tapping, which focuses on the sharing of costs, is still under preparation.

The Commission for the protection of privacy (*Commissie voor de bescherming van de persoonlijke levenssfeer/Commission de la protection de la vie privée*) is responsible for monitoring issues relating to the protection of privacy, including data protection.

INTERNET

The Internet penetration rate was around the EU average during 1998 and 1999. Since then, Belgium has seen one of the fastest growth rates in the EU, with the number of Internet connections growing by more than 300% between March 1999 and March 2000, and the penetration rate is now estimated to be over 25%. Part of this growth can be attributed to the fall in Internet access tariffs, an attempt by the Government to prevent a "digital split" in society.

This fall in prices, or rather the Internet dial-up access model, has been a controversial regulatory issue in Belgium for more than a year. Belgacom introduced a reduced retail tariff, without providing an equivalent reduced rate for interconnection. The related new numbering scheme ("078" numbers) was beneficial to Belgacom, as it was based on a so-called "terminating" model, in which the new entrants have to apply the tariffs the incumbent applies to terminate a call (on the basis of reciprocity). The financial burden of the retail tariff reduction was therefore to fall completely on new entrants, who took the case to court, and won. The next Internet dial-up access offer, based on "0909" numbers, included an 18% reduction in interconnection rates. The "0909" scheme is supposedly based on a "collecting" model, which gives full flexibility to new entrants regarding their retail tariffs. The new entrants, however, dispute the model, because there is still no real freedom of tariffs, as Belgacom merely gives them the choice between three predetermined tariffs. A deadlock has again been reached between the incumbent and new entrants, and the case is before the court. In the current situation it appears to new entrants that, until the change is made to a true collecting model, the strength of Belgacom and its subsidiary ISP(s) is preventing other ISPs from entering the market and is limiting competition from ISPs already in the market. In 2001 a change will be made from the current terminating model to a collecting model.

IBPT/BIPT has set up an ad hoc working group to examine this issue in detail, in the context of the BRIO 2001 negotiations and the change to another model. IBPT/BIPT would like to give very clear advice to the Ministry. It is examining who is to determine the tariff and how the billing system will w

DENMARK

OVERVIEW

Following the Danish Parliament's September 1999 political agreement on telecommunications policy aims and the future development of telecoms regulation in Denmark, a new, consolidated "Act on Competitive Conditions and Consumer Interests in the Telecommunications Market" (Act No. 418/2000) was adopted on 31 May 2000 and entered into force on 1 July 2000, supplemented by a number of Executive Orders.

This new Act consolidates and simplifies the Danish legal framework for telecommunications, which had previously been made up of a number of disparate legislative acts. At the same time it maintains the light regulatory approach noted in the 5th Report, notably the reliance on general authorisations rather than individual licences for fixed network operators and service providers.

The new law also allows for greater flexibility in updating and adapting the legislation to reflect future developments, through increased scope for rule-making by secondary legislation (Executive Orders by the Minister for Research and Information Technology or by the National Telecom Agency (*Telestyrelsen*) (the NTA)). It also contains measures designed to enhance the efficiency of regulatory action, for example provision to ensure that where appropriate decisions of the NTA are not suspended pending appeal, but can enter into effect on an interim basis.

Against this developing regulatory background, the Danish telecommunications market continues to show significant growth, with the overall telecommunications market estimated to have grown by 7.4 % (in terms of revenues) over the last year. This growth is also reflected in the mobile penetration rate, which NTA statistics indicate had reached 61% at 1 August 2000, up from an estimated 46% at the time of the 5th Report. The continuing effects of competition can be seen in the figures for outgoing international calls on the fixed network, according to which the incumbent Tele Danmark's share of this market stood at 45% at 30 June 2000, compared with 57% a year earlier. Tele Danmark's share of the national call market (in terms of minutes) was 73% at 30 June 2000.

NTA figures show that the number of Internet subscriptions per 100 inhabitants grew from 21.3 to 28.6 in the 6 months to 30 June 2000. Furthermore, Danish statistics indicate that 64% of the population between the ages of 15 and 74 have access to the Internet (at home, work or school). This reflects the emphasis placed as a matter of public policy on the development of a network society in Denmark.

NATIONAL REGULATORY AUTHORITY AND APPEALS

The 5th Report noted that co-ordination between the NTA and the Competition Authority worked well and offered an effective "one-stop-shop". However, it also reported the perception among some operators that the NTA adopted a cautious, reactive approach towards regulatory intervention and concerns over the length of time taken to resolve disputes. Although a number of significant decisions or initiatives since the 5th Report (for example NTA's decision of May 2000 on interconnection pricing and its successful mediation on LLU) are considered positive by operators, these concerns remain to some extent. In particular new entrants stress the need to ensure effective

ongoing supervision of the practical implementation of decisions by the regulatory authorities. For its part, the NTA points out that it has no legal basis to intervene on its own initiative except in determining interconnection prices, in which area it has been very active over the last year.

The concerns expressed in the 5th report regarding the timeframe for resolving disputes have been addressed by certain provisions in the new Danish telecommunications law, such as those to ensure that decisions of the NTA are not necessarily suspended, but can enter into force in some cases on an interim basis pending an appeal, as well as provisions which enable the NTA to order interconnection on a "fast-track" basis in certain circumstances.

The incumbent Tele Danmark supports the principle of the shift from sector-specific regulation to the application of competition rules and an increased participation of the Competition Authority in assessing market conditions, but questions the extent to which this is being achieved effectively in practice. It stresses the need for application of the principle of regulatory forbearance, so as to reflect the degree of competition existing in a given market.

On the international level, some concerns have been expressed by Danish operators that significant differences in the approach to regulation at national level in the Member States risk undermining the harmonisation achieved in the single market to date. They stress the importance of ensuring co-ordination between regulatory authorities in the different Member States.

The NTA has taken on more staff to deal with issues related to the establishment of the new LRAIC cost accounting system for SMP operators and is confident it has the necessary resources to carry out its tasks.

LICENSING

The 5th Report highlighted the very light licensing regime in Denmark, which requires individual licences only for mobile network operators. Consequently there are no major concerns among operators regarding the general licensing regime in Denmark. Comments have been made by some operators that the absence of notification/registration requirements for fixed operators can create some uncertainty as to whether some companies are operators or end-users of telecommunications services.

Concerns have been expressed by some operators as to the consequences of the decision of the Danish Parliament to opt for an auction procedure rather than a beauty contest for the grant of third generation mobile licences, arguing that this may negatively effect the development of these services. See "Mobile Services" below for further details.

A tender procedure (beauty contest) for the award of licences to establish and operate wireless local loop access networks was launched in February 2000, with 7 licences due to be awarded in December 2000. For more details see the section on Local Access.

INTERCONNECTION

The 5th Report referred to the use of "best practice" mechanisms to effect reductions in interconnection charges in Denmark and to the longer term objective of the introduction of a LRAIC cost accounting system for SMP operators by the end of 2002. It also noted the concerns of new entrants over the lengthy time periods which had been experienced in the past in implementing interconnection price reductions.

Following the NTA's decision reducing interconnection rates of the incumbent Tele Danmark with effect from October 1999 (referred to in the 5th Report), the NTA decided (on the basis of a 3-country "best practice" comparison) on a further reduction in interconnection charges with effect from 1 May 2000. This involved reductions of 10%, 20% and 25% for local, single transit and double transit interconnection respectively. Tele Danmark appealed unsuccessfully against the first of these decisions and did not appeal against the second. In both cases the reductions in interconnection charges took effect without delay, and consequently it would appear that the situation has improved significantly since the last report. In addition a decision of the NTA was made at the end of May 2000 to effect a reduction of 70 % in Tele Danmark's transit prices. Tele Danmark has also reduced the quarterly fee on interconnection capacity by 45% with effect from 1 October 2000, following discussions with the NTA.

According to comparative figures on interconnection charges available in Member States, Tele Danmark's interconnection charges currently comply with the Commission's "best practice" targets for all of local access, single transit and double transit. In fact the charges for double transit are actually below the Commission's best practice range.

The new Danish telecommunications law which came into force on 1 July 2000 provides that in normal circumstances appeals against decisions of the NTA on interconnection issues should not have suspensory effect. The new framework also allows a choice between a "best practice" exercise based on a three-country comparative analysis and one based on a one-country comparison. In the case of the three-country comparison, adjustments are made only for product differences, while in the one-country comparison, adjustments are made also for differences in the markets concerned. It is intended that the best practice approach towards interconnection price regulation will remain available to Danish regulators until the full implementation of the LRAIC cost accounting system planned for no later than the end of 2002.

The incumbent Tele Danmark, however, has expressed concerns over the reliance on a "best practice" approach, on the grounds that it is not related to the real costs of providing interconnection in a particular country, it involves a mechanistic element arising from events outside the market concerned, and does not take sufficient account of the need for efficient allocation of resources. It argues that this creates a lack of regulatory certainty and a risk of divergence between the results of best practice and those of a genuine assessment of costs.

The Danish authorities argue, on the other hand, that on the contrary the use of a best practice model creates very clear regulatory certainty, in the sense that the operator knows that his prices will be reduced, should they not be the lowest in a comparison with three countries. Hence the operator is able to make the necessary adjustments on a current basis. New entrants also support the use of best practice methodologies to keep downward pressure on prices.

Tele Danmark also argued that the principle of tight price regulation of interconnection and special network access applies in Denmark not only to switched interconnection but also to lease of infrastructure (including leased lines and LLU) and to collocation, while in other Member States the interconnection obligation is interpreted much more narrowly. They argue for a more co-ordinated approach throughout the EU.

Tele Danmark maintains a series of standard agreements covering a range of different facilities or services, including switched interconnection (the RIO). This was last updated on 16 March 2000.

LOCAL ACCESS

The 5th Report stated that full local loop unbundling was introduced in July 1998, but that there had been a number of practical problems in its implementation. It was also reported that one operator had not accepted the framework agreement originally negotiated between operators. Following a successful mediation by the NTA, an agreement on conditions for full LLU was reached in April 2000 between Tele Danmark and the operator concerned. By now some eight agreements have been entered into for full LLU and new LLU orders have increased significantly during 2000.

Collocation is mandated under the Danish telecommunications law and is part of Tele Danmark's reference interconnection offer (RIO) for full LLU. Conditions for collocation are subject to commercial negotiation, with the possibility of referral to the NTA for conciliation and a final decision if necessary, under the terms of the telecommunications law relating to interconnection.

Shared access to the local loop is not currently included in Tele Danmark's standard agreement (RIO) on LLU and there are no agreements currently in place for this form of access. However, the right to shared access has been confirmed and clarified in an Executive Order adopted in June 2000 (Executive Order No. 573 of 22 June 2000 on basic bearer services and facilities subject to interconnection obligations).

As regards bitstream access to the incumbent's local loop, there are also no agreements currently in operation, although the right to such access is also laid down in the above-mentioned Executive Order. The applicable pricing methodology for this form of access under the Danish regulatory framework is currently modified historic costs and best practice, and the LRAIC cost accounting methodology will apply once this enters into force.

The introduction of xDSL services in the Danish market is still at a relatively early stage, with approximately 5,000 subscriptions in place. However, operators are actively marketing their products and it is expected that these services will represent a major new area of competition in the coming months.

A tender procedure (beauty contest) for the award of licences to establish and operate wireless local loop (WLL) access networks was launched in February 2000, with 7 nation-wide licences (3 licences in the 3.5 GHz band and 4 licences in the 26 GHz band) due to be awarded in December 2000. On expiry of the deadline for applications, the NTA had received a total of 17 tenders from 12 different tenderers.

The framework for the WLL tender is laid down in Executive Order No. 71 of 27 January 2000 on Public Invitation to Tender for Licences to Establish and Operate Fixed Wireless Access Networks, as amended by Executive Order No. 131 of 24 February 2000 and by Executive Order No. 871 of 15 September 2000. The tender and the subsequent assignment of radio frequencies also made it necessary to amend the frequency plan.

Some concerns have been expressed by operators that the cost of implementing the obligations relating to roll-out and coverage under the WLL licences may undermine the competitive attraction of this means of access as compared to others, such as local loop unbundling. The NTA does not share this view and points to the level of interest shown by operators in the tender procedure.

There are currently no broadband or voice telephony services being offered over cable television networks in Denmark, although some testing of broadband services is under way. A number of providers do, however, offer *high-speed* Internet access (up to 1Mbit/s) via cable television networks. The new Danish telecommunications law which entered into force on 1 July 2000

provided for the legal separation of cable TV and telecommunications networks in accordance with Directive 99/64/EC, and it is anticipated that the legal separation of Tele Danmark's cable TV interests will take place before 1 January 2001 in the context of a wider re-organisation of its activities. The NTA made a decision on 29 September 2000 that the legal separation of Tele Danmark's cable television interests should take place before 1 April 2001.

A report on broadband access is due to be published in the late autumn of 2000 by the NTA, following on from its "Report on New Access Routes to the Network Society" of January 2000. This report is likely to form the basis for further policy and legislative initiatives in this area.

UNIVERSAL SERVICE/CONSUMER/USERS

The 5th Report described the services covered by the universal service obligation in Denmark and noted that Tele Danmark has been designated as universal service provider until 31 December 2007. Maximum prices for USO services are set by the NTA, in consultation with the Competition Authority, based on a "best practice" assessment.

Although there is provision in the Danish telecommunications law for a compensation mechanism for costs incurred in providing universal service, there is no real pressure for the activation of such a mechanism at this time.

A new Executive Order on Universal Service is expected to enter into force in November 2000.

Consumer protection is not a major issue of contention in Denmark. Subsidiary regulations under the telecommunications law cover matters such as the minimum requirements of consumer contracts, requirements for the certification of charging, billing and complaint systems. Operators have suggested that some of these consumer protection rules (e.g. certified billing systems etc.) could pose a problem for the smaller new entrants to the market, but not for new entrants backed by larger companies.

MOBILE SERVICES INCLUDING THIRD GENERATION AND ROAMING

Following the framework agreement on future telecommunications policy aims made by a majority of the Danish Parliament on 8 September 1999, the same political parties agreed, on 7 October 1999, to launch a number of frequency policy initiatives, including tendering of radio frequencies for the establishment and operation of: public fixed wireless local loop access networks, national public digital second generation mobile networks (e.g. GSM900/GSM1800); public mobile radio (PMR) networks for emergency and safety purposes and other specific communications requirements (e.g. TETRA); and public digital third generation (3G) mobile networks.

Originally it was intended that all these tendering procedures would be made by way of comparative bidding procedure (beauty contest). However, on 27 April 2000 (following the result of the UK 3G auction) a political agreement was concluded between the Minister of Research and Information Technology and political parties representing a large majority of the members of the Parliament, whereby it was agreed to assign radio frequencies for the third generation mobile networks by auction instead of beauty contest. This requires an amendment to the existing legislation on frequency management, which is due to be effected in the autumn of 2000. In this regard the precise timing of the issue of the 3G licences remains to be clarified. However, concerns have been expressed that the previously announced date of October 2001 for grant of the licences might not

allow sufficient time for successful licensees to prepare for the launch of 3G services by the deadline of 1 January 2002 required by the UMTS Decision.

At the time of writing, no definitive decision had yet been taken on the number of 3G licences to be issued nor the precise auction procedure to be adopted. The full 155 MHz to be allocated to 3G services in accordance with ERC Decision 2000/01 are already available.

Provision already exists in the Danish telecommunications legislation requiring providers of public mobile communications networks to meet all reasonable requests for establishing or modifying agreements on national roaming. This right will therefore also enable 3G operators who do not have a 2G network to request national roaming on a competitor's 2G network. Prices for national roaming are, however, currently subject to commercial negotiation only.

As regards GSM networks, there are currently six licences in issue: two GSM licences in the 900 MHz band and four GSM licences in the 1800 MHz band. Tenders have been invited for four additional nation-wide licences: two in the GSM900 band and two in the GSM1800 band. It is intended that these new licences will be issued in January 2001.

Demand for 2G mobile services continues to grow strongly, both as regards voice telephony and special services such as SMS, with the mobile penetration rate having reaching 61% by 1 August 2000, up from an estimated 46% at the time of the 5th Report.

As regards public mobile radio (PMR) networks, indicative tenders have been invited for two nation-wide licences: one within the 380-400 MHz band to cater for the special requirements of emergency and public safety services and one within the 410-430 MHz band for communications requirements in areas other than emergency and public safety. The licences are due to be issued in August 2001 via two simultaneous tender procedures.

The new Danish telecommunications law includes provisions to facilitate mobile virtual network operators (MVNOs), allowing access to national roaming for operators who do not own their own network. MVNO operations are beginning to be seen on the Danish market. Already 2 MVNO interconnection agreements have been concluded and the first MVNO started operations on 9 October 2000. Some operators have expressed concern regarding the effects of the lack of reciprocity in other countries which do not require similar access for MVNOs.

New entrants have argued that problems exist in relation to the level of mobile termination rates for fixed-to-mobile calls in Denmark (as elsewhere in the EU) and that this is something that is not subject to regulation in the new Danish telecommunications law. While obligations of non-discrimination apply to the two mobile operators who have been designated as having significant market power in the market for mobile services, there is no cost-orientation obligation, due to the fact that there is no mobile operator designated as having significant market power in the national market for interconnection.

The 5th report indicated that the phasing out of the analogue NMT technology in the 900 MHz frequency band was due to be completed between 2000 and 2002. At 30 June 2000 approximately 89,000 NMT subscribers remained. The Danish State and Tele Danmark have agreed that the frequencies previously occupied by the NMT services will be re-assigned, according to a defined timetable, to the new GSM licences due to be issued at the beginning of 2001.

TARIFFS

Maximum prices for USO services are set by the NTA. Following the latest decision on 31 August 2000, which takes effect on 1 January 2001 and governs tariffs for the years 2001 and 2002, the Danish authorities believe that tariff rebalancing will have been achieved. As a result of this decision, the subscription fee of the incumbent, Tele Danmark, will for the first time be the same throughout the country (DKK 340/quarter) and Tele Danmark will also charge a common rate for all fixed calls within Denmark. For the average private consumer the decision implies a 4 % real term decrease in the total bill in both 2001 and 2002. From 1998 to 2002 the average consumer will have experienced a real term decrease of at least 18.5 % in the total bill.

Tele Danmark has expressed the view that the rigid application of retail price regulation does not give sufficient consideration to the degree of competition achieved and the affordability of the services provided. However, the NTA points out that retail price regulation in Denmark only determines a maximum price and that Tele Danmark has the full possibility to lower retail prices below the maximum prices.

The new telecommunications law allows the Minister to lay down rules to ensure that reductions in end-user prices for USO services do not exceed actual falls in prices for related interconnection products, so as to protect the competitive position of other operators and avoid the "price squeeze" effect. These rules will be included in a new Executive Order on Universal Service due to enter into force in November 2000.

COST ACCOUNTING

The 5th Report referred to the decision to introduce a LRAIC cost accounting system for SMP operators as part of the political agreement of September 1999 on telecommunications policy aims, and stated that it was intended that interconnection prices could be set by reference to this system by the end of 2002. The new telecommunications law which entered into force on 1 July 2000 provides for this accounting model to be developed. It will be developed on the basis of two parallel cost analyses: a top-down analysis carried out by Tele Danmark as the designated SMP operator and a bottom-up analysis by the operators requesting interconnection. The final model will be determined by the NTA on the basis of a consolidated balancing of the two separate analyses. In the meantime Tele Danmark maintains cost accounting systems on a modified historic cost basis. The cost standard is based on a narrow definition of allocated costs and the cost basis is the actual costs paid.

A description of the cost accounting system currently used by the incumbent Tele Danmark is available to third parties on request (c.f. Article 7(5) of the Interconnection Directive).

Tele Danmark is also obliged to maintain separate accounts for different business areas, in accordance with the relevant subsidiary legislation on interconnection agreements. Further, more detailed rules governing the separation of accounts were adopted in conjunction with the adoption of the new telecommunications law and are due to come into effect on 1 January 2001.

The 5th Report noted that Tele Danmark's 1998 accounts had been submitted to the NTA and were "currently under consideration" by them. This consideration is still not complete, and no formal statement concerning compliance has yet been published in accordance with the requirements of Article 7(5) of the Interconnection Directive. However, such a statement is expected to be published shortly.

As regards Tele Danmark's "Duét" service, comprising fixed and mobile facilities in a single subscription (based on service provision agreements with Tele Danmark's own mobile and fixed networks), which had been the subject of a complaint alleging (*inter alia*) cross-subsidisation, the Telecommunications Complaints Board made a decision on appeal on 16 November 1999 which found against the NTA's previous acceptance of Tele Danmark's accounting treatment of this service and required a reappraisal of those accounts. As a consequence of the decision taken by the Telecommunications Complaints Board, the NTA ordered Tele Danmark regularly to report a separate business segment account for the Duét service, based on the accounting principles laid down in Executive Order no. 861 of 4 December 1998, beginning with the year 1999, which the company has done.

As part of the new telecommunications regulation in Denmark it is now statutory that combination services provided by SMP operators must be reported to the NTA as a separate business segment account.

It would appear that the recent conclusion and implementation of agreements on full LLU should facilitate the provision of competitive services similar to "Duét".

LEASED LINES

Latest comparative cost data for leased lines indicate that retail rental prices for national leased lines in Denmark are among the cheapest in the EU.

Tele Danmark reduced its tariffs for international leased lines by 40% as of 1 April 2000, following discussions with the NTA.

Some disputes have arisen concerning certain technical restrictions imposed by the incumbent Tele Danmark on the capacity of certain of its leased lines on the grounds of protection against interference, following the installation of equipment by other operators to increase the speed of those leased lines. This issue has been examined by the Competition Authority, which has concluded that the arrangements are in line with the competition rules.

NUMBERING

Carrier pre-selection came into effect in Denmark on 1 January 1999 and is available for international calls and national calls (including local calls and calls to mobile). Carrier pre-selection has proved to be very popular in Denmark, with some 494,000 customers making use of this facility as at 30 June 2000, up from about 366,000 at the end of 1999, according to figures published by the NTA. Some operators however question the price set for carrier pre-selection, which remains at 72 DKK (the same as number portability). The price of carrier pre-selection is currently subject to a mediation procedure with the NTA.

Number portability between fixed networks (including ISDN) within the same geographical area took effect on 15 October 1999 and is based on an IN solution and centralised database which should be capable of handling number portability in large volumes. Number portability is being utilised by business customers, but new entrants argue that it is not yet being taken up to a significant degree by private customers.

Fixed-to-mobile and mobile-to-mobile number portability was due to be introduced from 1 January 2001. However, the practical implications of implementing these facilities were the subject of lively

debate within the industry and some technical difficulties were anticipated. On 2 October 2000, the Minister of Research and Information Technology therefore decided to extend the time limit for implementing full number portability. The new terms are as follows: mobile to mobile - 1 July 2001; mobile to fixed - no later than 1 April 2002. In addition the geographical limitation on fixed to fixed number portability will be removed as of 1 January 2001.

In connection with the implementation of full number portability, it may prove difficult for the consumer to know whether the call is made at an ordinary fixed network tariff or at a higher mobile tariff. Consequently, requirements will be made for a method of informing the end-user of the price of his or her call.

RIGHTS OF WAY

The 5th Report indicated that no major regulatory problems were identified concerning rights of way in Denmark, but did note that there was no obligation in Danish law to require cable duct sharing and that some problems had been encountered in obtaining access to certain transport infrastructure facilities.

It would appear that these concerns remain, although they have not to date constituted a major impediment to competition. There is also no legal requirement for local authorities to encourage the co-ordinated laying of cables by different operators, although it is known that some road-authorities have demanded co-ordinated laying of cables. The NTA has indicated that it is not aware of any concerns in the market on this issue.

The law on the erection and sharing of masts for radio communications, which entered into force in April 1999, appears to be operating effectively in practice.

DATA PROTECTION

The 5th Report stated that national measures had been taken to transpose the requirements of Directive 97/66/EC concerning the processing of personal data and protection of privacy in the telecommunications sector, with the exception of Article 5 on confidentiality of communications (transposition deadline 24 October 2000) and Article 12 on unsolicited calls, which remained to be implemented by means of an amendment to the Act on Marketing. By a law adopted on 31 May 2000 and entering into force on 1 July 2000, amendments were made to the Act on Marketing to transpose the requirements of Article 12 of the Directive. As regards Article 5 of the Directive, the Danish authorities state that confidentiality of communications is regulated in Denmark under the general law, e.g. in the constitution and the penal code, and also in Section 13 of Act on Competitive Conditions and Consumer Interests in the Telecommunications Market (Act No 418 of 31 May 2000).

In conjunction with the entry into force of the new Danish telecommunications law on 1 July 2000, the existing subsidiary legislation transposing the provisions of Directive 97/66/EC was replaced by two new Executive Orders, No. 569/2000 on the Provision of Telecommunications Networks and Telecommunications Services and No. 665/2000 on Number Information Databases.

Under these provisions, providers of public telecommunications services are obliged to take appropriate measures to ensure the security of their services. As regards storage and processing of end-user traffic data, this data must be erased or made anonymous upon termination of the call, except for specified data for the purposes of end-user billing and interconnection payments, which

can be stored and processed up to the end of the period during which the bill may be lawfully challenged or payment pursued (five years). The NTA has responsibility for supervising and enforcing the provisions of the above regulations.

No particular problems have been reported in relation to the storing and processing of traffic and billing data, network security or confidentiality of communications.

The Danish Data Protection Agency exercises surveillance over processing of data to which the Act on Processing of Personal Data (Act No. 429 of 31 May 2000) applies. This Act entered into force on 1 July 2000 and implements Directive 95/46/EC on the protection of individuals with regard to the processing of personal data and on the free movement of such data. The Agency mainly deals with specific cases on the basis of inquiries from public authorities or private individuals, or cases taken up by the Agency on its own initiative.

INTERNET

The Danish market for Internet service provision is growing rapidly and is characterised by a large degree of competition, with many small ISPs present on the market in addition to the main established companies, the largest of which (Tele Danmark's ISP) is estimated to have a market share of approximately 40% (as compared to Tele Danmark's estimated 74% share of overall domestic traffic on the fixed network). According to NTA figures, the number of Internet subscriptions per 100 inhabitants stood at 28.6 at 30 June 2000, up from 21.3 at the end of 1999. Danish statistics also indicate that 64% of the population between the ages of 15 and 74 have access to the Internet (at home, work or school).

As mentioned under "Local Access" above, a number of operators are actively marketing ADSL services at the current time, although the level of subscribers is still relatively small. No uniform charging level for these services has yet emerged, although it is likely that prices will come down over the coming months.

Internet access is being offered over cable television networks by a number of providers.

GERMANY

OVERVIEW

The Fifth Report outlined the rapid expansion of the German telecommunications services and infrastructure market and the strong competitive pressure created by new entrants which has brought down prices in almost all market segments and contributed to the appearance of a wide range of new products. It also identified concerns about the empowerment of the German regulatory authority (Regulierungsbehörde für Telekommunikation und Post - Reg TP), the high level of licence fees, insufficient supervision of the tariffs and cost accounting system of the incumbent, and excessive delays for the delivery of interconnection and collocation.

There are 175 operators (including Deutsche Telekom) licensed to offer voice telephony: 57 are licensed to offer voice telephony nationwide and 114 are licensed to operate within a geographically limited area (the licence area of the remaining 4 operators was not specified). 268 operators are licensed to operate public transmission lines: 19 have a national licence and 248 have a geographically limited licence (the licence area of the remaining operator was not specified). The number of applications for authorisation to operate infrastructure is constantly increasing. There are 117 interconnection agreements in place and 87 agreements for access to the local loop. The prices of long-distance and international communications have fallen sharply: by up to 93% for international calls and by up to 89% for domestic long-distance calls on a weekday. This trend continued in the first half of 2000.

The main regulatory developments since 1 October 1999 have been the award of the third-generation mobile licences on 19 August 2000 to a relatively high number of competitors (6) and the decision of Reg TP of 8 September 2000 setting the conditions for the element-based charging system for interconnection as from 1 June 2001. Progress has been made with respect to supervision of the incumbent's cost accounting system. From the regulatory authority's description of the incumbent's cost accounting system in its 1998/1999 report and a series of decisions taken, it appears that Reg TP is determined to enforce a cost accounting system which reflects costs in all areas, i.e. voice telephony, leased lines, interconnection and local loop access. The regulatory authority has published draft administrative rules which will make this practice compulsory.

A substantial number of operators have entered the local access market and, as a result, a quarter of the population can connect directly to an alternative access network operator and can choose between DT and one, or in some towns more than one, of the alternative operators (Reg TP Mid-Year Report 2000, p. 12).

The Monopolies Commission, in its report issued on 3 December 1999 and in its mid-year report of June 2000, concluded that there was not yet self-sustaining competition in any market (local, national, or international) and that the current degree of competition can only be sustained by retaining the present regulatory framework in its entirety (i.e. ex ante regulation of prices charged to operators and to end-users).

NATIONAL REGULATORY AUTHORITY AND APPEALS

In addition to the items raised in the Fifth Report, new entrants expressed concern about the workload of Reg TP. Although Reg TP has a large staff, new entrants feel that the Ruling Chambers lack the necessary human resources. They stress that all regulatory decisions are taken by the Chambers at the request of parties, that very few of the staff of Reg TP are involved in the regulatory tasks carried out by the Chambers, and that the Chambers are constantly overloaded due to their understaffing. The situation is aggravated by the increasing complexity of the market and the growing number of cases to be handled. This has a negative impact on the quality of decisions, encourages the Ruling Chambers to press the parties into conciliation – to the detriment of new entrants – and to ask them to continue with negotiations which are unlikely to result in an agreement, in order to avoid having to carry out the necessary inquiries. Reg TP points out that not all of the work associated with the decision-making process is carried out by the Ruling Chambers. They are supported by the other units responsible for questions of principle; significant market power; the cost accounting model; and the cost accounting data of SMP operators. Delays in the adoption of decisions by the Ruling Chamber responsible for ex post regulation are due to the fact that, before formally opening a proceeding, it has to establish the facts necessary to decide whether to open a proceeding, and this is a time-consuming task. The time-limit for taking a decision once the proceeding has officially started is two months and has been observed in practice.

The concern expressed by new entrants last year that Reg TP does not have the power to take decisions on interconnection on its own initiative persists. New entrants consider that the current system, under which the conditions of the reference interconnection offer are established on the basis of individual decisions, results in inefficient regulation of a series of aspects: lack of legal security as to the forthcoming solutions and possible future modifications thereof; no possibility to take a decision before a market problem becomes acute; lack of transparency and lack of consultation of the decision-making process. New entrants consider that the regulatory authority must intervene at an earlier stage, monitor the RIO, and set basic principles. The incumbent agrees with the new entrants that the decision-making process of the regulatory authority should be more policy-oriented and rely less on a detailed case-by-case approach. Reg TP disagrees, and stresses that the "*Grundangebot*" (set of compulsory conditions of the RIO) now includes all issues where it is necessary to set conditions.

Consumer groups welcome the generally proactive approach of the regulatory authority to establishing a consistent policy in the interest of residential customers, and believe there is a clear commitment to provide residential customers with choice and competitive prices. A series of decisions (charges for number portability, itemised billing) demonstrate Reg TP's consumer-friendly line. In addition, the regulatory authority has set up a consumer service, which is considered to be very accessible and which has increased transparency for consumers. However, consumers criticise the regulatory authority's lack of power to enforce the models it has established, in consultation with the parties, for the implementation of the consumer regulation (e.g. the standard form for billing), which means that user associations have to go to court to achieve enforcement. However, they are not in a position to pursue all cases of lack of implementation of regulatory positions.

Operators can appeal against decisions of the regulatory authority to the administrative Courts: an appeal does not lead to the automatic suspension of the contested decision. New entrants regard this as vital for enforcement of the decisions of the regulatory authority.

LICENSING

New entrants complain that the licensing procedure established in December 1999 (Vfg 158/1999, JO 23/99) is cumbersome and requires more information and documentation to be submitted than the equivalent procedures in other EU countries. The regulatory authority points out that the new procedure sets additional requirements on documentation to be filed as this was necessary to assess the personal reliability and the financial capacity of the applicant; as regards point-to point licences, the exact situation of the transmission line had to be specified, once the licence had been awarded.

New entrants reported lengthy procedures for the award of point-to-point and regional licences. Reg TP points out that the 6-week deadline under the Telecommunications Act (TKG) for the granting of licences also applies to point-to-point licences. The licensing procedure provides that the regulatory authority must acknowledge receipt of an application within fourteen days. If the documentation submitted by the applicant is incomplete, the regulatory authority has two weeks to request the submission of the missing documents. Reg TP can subsequently require the submission of further documents, where considered necessary. The same procedure applies for the award of all licences, including point-to-point licences.

The Fifth Report noted that there were concerns regarding licence fees. The Government is currently reviewing the Regulation; pending the adoption of a revised regulation, the existing amounts continue to be charged, however, on request, collection of the amount can be deferred.

INTERCONNECTION

New entrants claim that DT has responded to the high workload of the regulatory authority by refusing to negotiate with other operators and relying exclusively on dispute settlement in order to delay the entry into the market of new operators. According to new entrants, the increasing inefficiency of the dispute settlement procedure diminishes their bargaining power in negotiations with DT. They believe that the incumbent deliberately makes negotiations more difficult by negotiating separately with each operator, even though the subjects are identical. DT says that it generally organises two rounds of discussions with groups of operators, presenting the proposed contractual arrangements in the first round and the technical parameters in the second round; specific questions are then negotiated bilaterally.

New entrants believe that small and medium-sized operators sign interconnection contracts without having the experience to evaluate the conditions imposed, and frequently accept the initial proposal of the incumbent as it stands. Subsequently, operators cannot get unfair conditions overturned under dispute settlement procedures, as the regulatory authority assumes they correspond to market needs simply because some operators have already accepted them. The regulatory authority maintains that contracts already concluded by small operators are not taken into consideration and do not affect the credibility attached to the solutions adopted in them, as has been highlighted by a series of decisions.

The regulatory authority does not impose any time limits for negotiations; new entrants and the incumbent both report that new agreements take an average of two months to negotiate if the issue is covered by the reference interconnection offer (RIO). However, in the case of issues not covered by the RIO, new entrants claim that the regulatory authority increasingly requests operators to carry out further negotiations, even where there is no prospect of reaching agreement; this not only unnecessarily delays the dispute settlement procedure, but also provides an incentive for the incumbent to delay reaching an agreement, and thereby delay market entry. The regulatory authority says that in almost all dispute settlement procedures it takes a decision resolving at least part of the dispute, and that in a series of cases agreements have been reached within the dispute settlement procedure.

As explained in the Fifth Report, there is concern that Reg TP, in a series of decisions, has authorised DT to impose up to 23 further interconnection points once a certain capacity of traffic (48.8 Erlang)[1] routed to a given interconnection point is exceeded, and declared the decisions to be part of the content of the reference interconnection offer (*Grundangebot Vfg 39/2000, ABl 6/2000, p. 1042)*. New entrants point out that there is no technical limit on capacity at a given interconnection point, and that network integrity cannot be affected by the level of traffic routed to a specific interconnection point, provided the incumbent's network is able to provide the capacity requested by the new entrants; they take the view that, in cases of expected overload of the network at a certain interconnection point, the incumbent should be requested to upgrade his network and provide the necessary capacity. They point out that neither the regulatory authority nor the courts, during the subsequent injunction hearings at the Administrative Court of Cologne and the Higher Administrative Court of Münster, had found any evidence of a threat to network integrity, on the basis of the existing transmission capacities of the incumbent's network. Indeed, as part of the injunction procedure, the Higher Administrative Court of Münster confirmed the validity of the migration obligation. It did not, however, carry out itself the inquiries to justify this finding, but referred to the tests carried out by the regulatory authority. A definitive judgment has not been given yet.

The Network Access Regulation provides that where Reg TP imposes interconnection, this must in principle be delivered within three months. However, new entrants say that this time limit is not observed, and that the average time taken exceeds 8 months, which they consider excessive. The incumbent confirmed this average delay, claiming that it was due to over-ordering by new entrants (71 000 POIs currently on order, which corresponds to the capacity needed to transport all German telecommunications). In order to progressively resolve the problem, the regulatory authority published a communication on the management of the scarcity of interconnection points at the end of December (ABl 23/99, Mitteilung Nr. 567/1999), defining the priority with which requests for interconnection points must be dealt with. However, new entrants say that this measure has not led to any improvement, and that the priority system is ineffective. The regulatory authority takes the view that the measure has improved the record on delivery times. It further points out that, in its decision of 8 September 2000 on interconnection tariffs applicable from 1 June 2001, the difference between local and single tandem interconnection has been defined in such a way as to calm down further over-ordering. Under certain circumstances, where DT is unable to provide local interconnection on time, the new entrant can demand to be charged on the same basis as if local interconnection had been provided.

New entrants expressed concern about the lack of a consolidated text of the compulsory part of the incumbent's reference interconnection offer (*Grundangebot)*. The *Grundangebot* is published in the official journal of the regulatory authority. The regulatory authority also provides information on the *Grundangebot* on its web site[2], including a description of all compulsory conditions and the validity thereof. The incumbent's reference interconnection offer can be downloaded from its intranet web site by parties who identify themselves and give a confidentiality undertaking.

By its decision of 23 December 1999, Reg TP set the interconnection tariffs to be charged by DT from 1 January 2000 to 31 January 2001. The German interconnection tariffs are based on a distance-based system, while the EU benchmarking for interconnection tariffs is element-based (Element Based Charging - EBC). It is therefore difficult to compare the German interconnection tariffs with the EU best practice benchmark. The Regio 200 tariff substantially exceeds the EU benchmark tariffs for single transit and also for double transit, and the German long-distance tariff

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1 Erlang: A measure of telecommunications traffic. 1 Erlang corresponds to a circuit carrying one call for one hour.

2 http://www.regtp.de/reg_tele/start/fs_05.html

substantially exceeds the EU benchmark for double transit. Although – as reported in the Fifth Report - this might account for only a small part of the traffic of DT, city carriers point out that they are dependent on DT Regio 200 and long-distance interconnection for a substantial part of their traffic (i.e. the relative importance of long-distance traffic is much higher for regional providers than for DT).

Germany will change from a distance-based system to an element-based system on 1 June 2001. It appears that the decision of Reg TP of 8 September 2000 setting the tariffs and conditions for the forthcoming system has removed a major concern of new entrants, in particular the fact that the model proposed by DT contained four charge bands and far too many local interconnection points, and proposed a restrictive application of the local tariff, i.e. only if the new entrant interconnected at all local switches in a given area. The regulatory authority furthermore points out that the single transit rate is charged to any operators interconnecting at one of the 23 regional POIs, provided that the connection corresponds to the single tandem.

New entrants consider that the interconnection charges of mobile operators for terminating calls on the mobile network are still high, even though, following a 50% reduction by the two leading mobile operators on 1 January 2000, German mobile interconnection tariffs are now among the lowest in Europe.

By its decision of 23 December 1999 setting interconnection tariffs for 2000, the regulatory authority exempted tariffs for international interconnection from tariff regulation, arguing that competition had been established. However, new entrants reported that for technical reasons they often had to rely on the service provided by the incumbent, and that the interconnection offers on the market for international interconnection were not a viable alternative. They criticise the regulatory authority for focusing exclusively on price competition and ignoring the technical aspects when examining the market for international connections. The Monopolies Commission, in its additional report of 7 July 2000, expressed concern about the determination of the relevant market (p. 3).

LOCAL ACCESS

Since 1 January 1998, the incumbent has been required to offer unbundled access to the local loop. This currently only covers rental of the fully unbundled raw copper line into the customer’s premises. Reg TP, in its decision of 7 June 2000, set a time limit of 7 days from receipt of the request for the provision of unbundled individual lines to new entrants. However, new entrants point out that there is a major problem with the timely provision of collocation.

The incumbent has offered ADSL to business users since April 1999 (T-Interconnect; T-Net ATM) and to residential users since July 1999 (T-ISDN-dsl). DT has made no offer to other operators not using its Internet platform; Internet providers can offer ADSL on the basis of a resale contract with DT, the terms of which are not known. Furthermore, new entrants complain that provision of their ADSL service via the unbundled copper line requires technical coordination with DT, which is reported to be a time-consuming procedure. The incumbent confirmed that new entrants are subject to verification of the network compatibility of the technique they propose to use.

The incumbent currently does not offer shared access; however, following the decision of the regulatory authority of 7 June 2000, new entrants can re-rent the high- or low-frequency part of the unbundled copper-line.

New entrants expressed concern about the high price that DT can charge its competitors for access to the local loop. On 8 February 1999 Reg TP set the charge for access to subscriber lines at DM 25.40 (EUR 13) per month. This is to apply until 31 March 2001. Competitors complain that these fees are out of proportion to the underlying costs, and prohibitive for market entry; charges for unbundled access to the local loop should be calculated on the basis of historical costs; it would not be appropriate to rely on the costs which would be incurred by a new entrant rolling out a new network, as the new entrant could not benefit from the bundling advantages of an already fully rolled out network. Unbundled access is available for ISDN and analogue lines, but due to the excessive price for access new entrants could not offer analogue services. New entrants consider that an increase in the monthly line rental charge which DT charges to its customers (DM 21.39) will not improve the situation, but merely increase DT's monopolistic revenue in the local market. They stress their interest in a best-practice benchmark price established by the Commission for access to the local loop. The regulatory authority points out that consistent supervision of the cost orientation of tariffs is only possible if a single cost accounting system is applied to all types of tariff. The method for setting the tariff for the unbundled local loop must therefore be the cost accounting model currently used for tariff approval in general; this system is a bottom-up model and based on LRIC. This method for assessing cost orientation based on cost accounting should be used in preference to the comparison of prices, as it more adequately reflects costs and leads to the setting of the right incentives for the development of infrastructure.

Regarding local access, new entrants reported that DT only grants collocation to the extent that space is available, and often claims that there is no spare capacity, thus causing major delays for the delivery of the collocation necessary for the provision of access to the local loop (5 to 8 months or denial) and impeding the entry of new entrants, in particular into the local market in high-density areas. Reg TP, in its decision of 7 June 2000, set the time limits for the provision of collocation: DT must submit an offer for a collocation room within 20 days; if the order is for a new collocation room, delivery must take place within 16 weeks; if it is an enlargement of an existing collocation room, delivery must take place within 7 weeks. However, new entrants pointed out that these deadlines are exceeded in the majority of cases, and that in many cases collocation has not been provided at all. New entrants consider Reg TP's failure to include in its decision appropriate penalties to ensure that the incumbent observes the time limits to be a serious problem. The incumbent claimed that the decision imposes an obligation which it is not be in a position to comply with, but which will merely subject it to the threat of claims for damages. Furthermore, a penalty clause would not solve the problem of delivery times. The regulatory authority takes the view that, given the opportunity for new entrants to claim damages in the civil court, for the time being there is no need to set penalties. It is following the evolution of the situation closely, and expects that the adjustment of the agreements on access to the unbundled local loop in accordance with the above-mentioned decision will help resolve the bottleneck.

New entrants expressed concern that DT did not allow third-party operators to interconnect between themselves in its collocation rooms.

There has been broad interest in the assignment of frequencies for the wireless local loop (WLL). During 1998 and 1999, a number of operators were granted regional licences as a result of a comparative bidding procedure, and most of the available frequencies were assigned. The regulatory authority identified further frequencies for assignment following the optimisation of frequency planning in certain regions and organised a further tender procedure for the award of further licences. New entrants have expressed their satisfaction with the new tender procedure, which they believe allows the assignment of all technically available frequencies, thus removing their earlier concern that not all available frequencies had been assigned. The provision of services via WLL took off in late 1999 and early 2000, and new entrants are investing several billion euros in WLL.

However, new entrants say that WLL services are economically viable only for certain types of clients and services, and are not likely to be offered with general geographical coverage.

Telecommunications services can also be provided via the TV cable. DT intends to use its broadband cable network for multimedia services, as do companies buying parts of the CATV network from DT; however, the impact of DT retaining the right to decide on the capacity of the cable network operators to offer telecommunications services is not yet clear, in particular given the fact that DT plans to keep a blocking minority of 25.1% in the new regional cable operators. The incumbent expects the cable operators to compete in the telecommunications sector following the sale of its cable network. Half a dozen CATV operators have entered the local access market.

The provision of telecommunications services via the electricity grid appears to be viable. However, the scope for large-scale marketing of telecommunications services via the electricity grid remains uncertain.

UNIVERSAL SERVICE/CONSUMERS/USERS

There is currently no system for financing universal service. Accordingly, there is no barrier to market entry linked to universal service.

DT provides the universal directory service. An increasing number of new entrants are interested in providing directories and directory services, as they consider that the publication of directories is likely to generate substantial advertising revenues. However, new entrants consider the excessive amount charged by DT for subscriber information to be a major impediment to market entry, even after DT reduced the amount in response to a proceeding launched by the Office of Competition, which subsequently suspended its investigation. The incumbent claims that the amount it charges is now insufficient to cover its costs.

Problems have arisen regarding the ability of subscribers to services provided by new entrants to check their bills, as certain new entrants take up to five months to send out their bills, and subscribers are frequently not aware of this. User groups say that operators should be obliged to provide monthly billing, except where the subscriber decides otherwise. The decision of the majority of carriers to introduce advice of charge – where a caller is informed of the charge payable at the end of his call –from 14 November 2000 (Reg TP, mid-year report 2000, p 39) will make it easier for consumers to monitor their expenditure.

User groups complain that there is insufficient supervision of contractual conditions. The only form of control available is by user groups challenging the conditions in the courts. Furthermore, consumers are not provided with a copy of the general conditions of their contracts, which they can consult only at points of sale or by purchasing the official journal of the regulatory authority in which they are published.

New entrants consider that there is a lack of competition on the market for fixed-to-mobile calls, and that as a result tariffs are excessive.

The German regulatory framework requires all service providers to provide itemised billing free of charge; however, user groups have pointed out that a series of operators do not use the standard form imposed by the authority.

User groups claim that there is a lack of transparency as regards the quality of service in the mobile sector.

MOBILE SERVICES, INCLUDING THIRD-GENERATION AND ROAMING

No concerns have been expressed as regards the management of the national frequency plan.

As regards the second-generation mobile (2G) market, there are currently two GSM 900 and two DCS 1800 licenses. Further frequencies available in the DCS 1800 bandwidth were assigned on 28 October 1999 following a simultaneous multiple round auction. The four established operators licensed to provide mobile services were allowed to participate in the auction, and the supplementary frequencies were assigned to the two leading mobile operators.

The phasing-out of analogue mobile services is due to be completed by the end of 2001.

The third-generation (3G) mobile auction took place from 31 July to 18 August 2000, and all the available frequencies were assigned to six successful bidders, who each received two 5 MHz frequency blocks. The auction proceeds totalled almost DM 100 bn (€50 bn). The prices of all licences were nearly identical (€8.5 bn). Legal proceedings have been initiated by one mobile operator to challenge the result of the auction on constitutional grounds. There is no national roaming obligation for either 2G or 3G operators in favour of 3G operators. The whole spectrum of 155 MHz will be available on 1 January 2001. Minor parts of it are currently occupied by point-to-point radio transmission.

The four mobile operators all offer international roaming, on a commercially negotiated basis. User groups consider that there is a lack of competition with respect to roaming, resulting in excessive charges. Roaming tariffs are not currently supervised by the regulatory authority.

There is no obligation on mobile (2G ,3G, WLL) operators to provide access to their network. However, the Telecommunications Customer Protection Ordinance (§ 4 TKV) obliges network operators, including mobile operators, to supply their offerings in such a way as to allow service providers to market such offerings in their own name and on their own account.

TARIFFS

Voice telephony tariffs are subject to approval by the regulatory authority if the licensee has a dominant position. The legal framework provides for each tariff to be assessed within a price-cap procedure, the conditions of which were set by decision of the former Ministry of Post and Telecommunications on 17 December 1997 and are applicable until 31 December 2001, and taking into account, inter alia, the costs of the efficient provision of services, and the absence of evidence of anti-competitive rebates and of discrimination. Tariffs, however, are not required to correspond strictly to the cost of providing efficient service on the basis of cost accounting data (cost orientation). There is concern that DT's monthly voice telephony line rental charge (DM 21.39) is below cost. New entrants take the view that the charge for access to the local loop is above cost. DT accepts that the line rental charge is below cost, but claims that it is not in a position to increase it. User groups would not oppose an increase in DT's line rental charge sufficient to cover costs, as this would promote competition. The line rental charge taken separately must be cost-oriented, as the very aim of cost orientation is to avoid cross-subsidies between different voice telephony services, thereby allowing new entrants to compete in all market segments.

New entrants have expressed concern that the current price cap mechanism for the approval of voice telephony tariffs allows the incumbent, due to its strong position on the local market, to cross-subsidise between long-distance and local calls, between the monthly line rental charge and the local per minute charge for voice telephony, and between Internet offers and voice telephony.

New entrants consider that the incumbent's practice of offering bundled packages (e.g. Aktiv Plus, which offers a combined rebate for local and long-distance calls) renders price authorisation ineffective, as cross-subsidisation cannot be verified when services are bundled. New entrants expressed concern about the XXL arrangement, which offers free phoning and surfing on Sundays and public holidays. There is no way that this tariff could be verified with respect to cross-subsidisation. This tariff constitutes a prohibitive barrier to market entry for long-distance network operators. The regulatory authority takes the view that an assessment of whether the XXL arrangement covers costs can only be carried out on the basis of data on the effective use of the arrangement by subscribers. It further points out that bundled offers cannot be considered as such as being anti-competitive, as they can also promote the development of effective competition to the advantage of users, provided that transparency of allocation of costs is ensured and cross-subsidisation is prevented.

COST ACCOUNTING

The regulatory authority included a detailed description of the incumbent's cost accounting system in its 1998/1999 report (p. 41-46). The incumbent is required to establish a uniform cost accounting system reflecting all costs. Within each tariff authorisation procedure (leased lines, interconnection, local loop), the regulatory authority requires the incumbent to submit its total costs, the specific costs for the service to be authorised, and the relationship between them. On this basis, it appears that the regulatory authority is determined to impose a suitable cost accounting system with respect to voice telephony, interconnection and leased lines. Although the cost accounting data collected are not used to approve the tariff for voice telephony (see under tariffs), it appears that Reg TP intends to impose a suitable cost accounting system for voice telephony as part of the requirement to indicate the common and operational costs related to the provision of service for end-users as part of the total costs (annual report, p. 46).

Accordingly to Reg TP's 1998/1999 annual report, the incumbent did not at that time operate a fully satisfactory cost accounting system, although there had been significant improvement. The cost accounting system adequately reflected infrastructure costs, but the bottom-up model used required further examination from a top-down perspective (p. 44/45). Reg TP had reservations about the way the cost accounting model reflected operational and marketing costs, in particular the time taken to perform certain procedures and the hourly pay rates of the staff concerned (p. 45). It concluded that the cost accounting model presented substantial gaps with respect to common costs, because there was no consistent allocation of common costs to the various parts of the network, and the costs attributed to network infrastructure contained a disproportionately high share of common costs compared with the costs attributed to end-users (inter alia the local access network) (p. 45/46).

In its decisions setting the interconnection tariffs (decision of 8 September 2000 setting interconnection tariffs from 1 February 2001 to 31 May 2003) and leased line tariffs (decision of 13 June 2000 setting leased line tariffs from 1 August 2000 to 31 July 2001 at the latest), the regulatory authority noted some remaining shortcomings in the cost accounting data submitted; however, it was able to calculate the applicable tariffs itself on the basis of the cost accounting data available, together with a detailed bottom-up cost accounting model. Progress towards the enforcement of a suitable cost accounting system is further highlighted by the publication by Reg TP of draft administrative rules (Communication No 518/2000, JO 17/2000), stating inter alia that Reg TP is bound to authorise tariffs on the basis of cost accounting data submitted and that in principle it will not base its decisions on the prices prevailing in comparable markets.

LEASED LINES

The Telecommunications Act (TKG) requires tariffs for leased lines of SMP operators to be cost-oriented. As the incumbent had not submitted adequate cost accounting data, Reg TP initially approved the tariff for leased lines only on a provisional basis, subject to the difference being refunded should the definitive tariff be lower than the provisional tariff (decision of 8 September 1999). On the basis of cost accounting data subsequently submitted by the incumbent, on 13 June 2000 Reg TP set the tariffs for leased lines at a lower level than in the preliminary decision, and accordingly ordered DT to repay the difference.

The tariffs of the operator having significant market power for national provision of all types of leased lines (short- and long-distance, low- and high-speed) are currently well below the EU average. However, tariffs for international leased lines have not been communicated.

NUMBERING

All carriers must provide number portability for geographic numbers with the same trunk code and for non-geographic numbers. No fee can be charged to the user or to the new carrier.

Reg TP has deferred the obligation for mobile operators to provide non-geographic number portability until 31 January 2002, and has announced that there will be no further deferment (Vfg 49/2000).

Carrier selection for long-distance calls is available on the fixed networks, and the NRA has set the amount which the incumbent may charge clients for the necessary technical modifications at cost-oriented level (DM 10/client from 1 January 2000). On the basis of an agreement between the network operators, the technical facility enabling a subscriber to select an alternative operator should be made available to new entrants within 3 days; however, operators report that a substantial proportion of their requests take longer.

User groups and new entrants consider the incumbent's failure to provide carrier pre-selection for local calls to be a restriction on user choice. The regulatory authority points out that although carrier pre-selection is not currently offered for calls within the 5 200 local areas, it is possible between local areas.

RIGHTS OF WAY

As previously reported, use of public ways is free of charge under the Telecommunications Act. This now seems to have been fully implemented, following the Constitutional Court ruling on 7 January 1999 that local authorities cannot charge "administrative fees". It reportedly takes between four and six weeks for authorisation to be granted. The operator then has the right to start work immediately.

There is no market entry problem linked to the right to use private land, which is subject to compensation under defined conditions.

The German legal framework provides for facility sharing. Site sharing between mobile operators appears to work in a satisfactory way.

DATA PROTECTION

As outlined in the Fifth Report, the Telecommunications Data Protection Directive (97/66/CE) has been substantially transposed by the Telecommunications Act (Telekommunikationsgesetz (TKG) of 25 July 1996) and the Telecommunications Carriers Data Protection Ordinance (Telekommunikationsdienstunternehmen-Datenschutzverordnung (TDSV) of 12 Juli 1996). However, the Data Protection Regulation did not address the issue of calling line identification in an entirely satisfactory way. The Data Protection Ordinance has been reviewed and is in the process of being adopted, the *Bundesrat* having given its consent on 29 September 2000. The forthcoming Data Protection Regulation provides for further rules with respect to calling-line and connected-line identification.

Pursuant to the Telecommunications Act (TKG), the regulatory authority (Reg TP) monitors operators' compliance with the provisions on data protection of the Telecommunications Act and the Telecommunications Carriers Data Protection Ordinance . The regulatory authority has the powers to give administrative orders and take other appropriate measures in order to ensure compliance with the Telecommunications Data Protection provisions (§ 91 (1) TKG).Besides the regulatory authority, the Federal Representative for Data Protection is responsible, inter alia, for ensuring compliance with the provisions on telecommunications data protection and for reporting on compliance (§ 91 Abs. 4 TKG). Both authorities have powers to access and inspect production sites and business premises. There is a close working relation between the federal representative and Reg TP. They hold regular meetings on current aspects of data protection in the telecommunications sector.

Operators must put in place the technical means to ensure the security of their networks with respect to data protection. The former Ministry of Posts and Telecommunications as predecessor of Reg TP, has issued detailed guidance as to the specific measures to be taken in order to ensure network security. This catalogue of security requirements is currently being reviewed. Reg TP is closely monitoring the application of the network security management rules by operators.

All operators are obliged to collect and store data on subscribers (numbers and names and addresses of the holders of these numbers) (§ 90 TKG), e.g. to provide a basis for surveillance by state authorities in individual cases. This surveillance requires the identification of the person (name, address, phone number or other means of identification) and can in general be carried out only on the basis of a court order. Only security authorities can consult those data indirectly via Reg TP, which will forward its online connection to the security authorities on demand. It was not clear whether the provision on collecting and storing the above data included an obligation to collect and store data identifying clients who use prepaid cards for mobile services. The Administrative Court of Cologne recently adopted a judgment that enterprises selling prepaid cards are not obliged to collect data related to the contract for law enforcement purposes. However, in a further proceeding, the Court decided not to grant an injunction suspending the enterprises' obligation to collect data, pending its final judgment.

Telecommunications operators may process data for the purposes of advertising, customer consulting or market research only with the consent of the subscriber. As regards data collected before 1 August 1996 (date of entry into force of the TKG), consent is deemed to have been given if the subscriber has been adequately informed but has not made use of his right of objection. The Telecommunications Law (§ 89(10) TKG) provides that consent must be given explicitly and, in principle, in writing.

Under the current TDSV, operators are obliged to erase traffic data immediately after the call, and are allowed to keep data necessary for billing purposes for a maximum of 80 days after dispatch of the bill. Operators considered this period to be too short, given the increasing complexity of billing procedures between operators as the number of operators involved increased as a consequence of liberalisation. The revised TDSV will set a maximum limit of six months after dispatch of the bill for storing data for billing purposes.

Subscribers have the possibility of receiving non-itemised bills; stopping automatic call forwarding by a third party to the subscriber's terminal; and requesting to be omitted from the directory free of charge. The calling user has the possibility to eliminate the presentation of the calling line identification. However the called subscriber is not offered the possibility to reject incoming calls where the presentation of the calling line identification has been eliminated by the calling user, nor does he have the possibility to eliminate the presentation of the connected line identification to the calling user free of charge. The revised TDSV will mandate those facilities.

INTERNET

Internet was the fastest growing market (about 70% a year according to Reg TP, Mid-Year Report 2000, p. 13). Per-minute Internet access prices fell by 35% in the first half of 2000, flat-rate prices by 45%. Ten companies now offer flat-rate Internet access. Internet service providers (ISPs) offer flat-rate packages at DM 77.00 (EUR 39.37)/month. A tariff model which only emerged in the first half of 2000 is the pre-pay package for Internet users. High-speed Internet access (DSL) is available in 60 towns and regions, and in 30 of these it is offered by half a dozen new entrants. A number of operators offer Internet access via a EUTELSAT satellite, and half a dozen CATV companies offer Internet access via their broadband cable. The estimated market share of the incumbent operator is relatively high, slightly above 40%. However, there are also other ISPs in the market with quite substantial market shares. The Fifth Report indicated that an estimated 40% of Internet subscribers were connected to the incumbent's ISP subsidiaries.

In its decision of 16 June 1999 (DT Online), the regulatory authority decided that DT is allowed to charge different rates to competitors depending on whether it is for Internet access (connection without access to the Internet platform for competing Internet service providers - Anschluss für Online-Dienste-Anbieter (AfOD)) or for voice telephony; DT in fact applied a "tariff inversion", i.e. it charged Internet service providers the same per minute rate for the use of its network as it charged its end-clients, minus a rebate linked to the volume of traffic, leading to a tariff which Reg TP estimates to be substantially below the tariff charged to end-users. Reg TP takes the view that Internet access requires, due to the different technology of the points of access, a different methodology from that applied for charging interconnection for voice telephony. DT reduced the tariff for AfOD from 1 March 2000 and from 1 August, and Reg TP is currently examining whether the new tariff covers costs and does not comprise excessive rebates. Reg TP is also carrying out an evaluation of the possibility of introducing a flat-rate interconnection charge for Internet access.

In its decision of 16 June 1999, Reg TP also decided that DT must charge the same rate for access to its Internet platform including the connection (T-InterConnect Online Connect) to its competitors and to its own subsidiary. However, new entrants claim that they are not in a position to verify the internal offer of DT to T-Online. They say that, particularly since DT launched an Internet flat rate in May 2000, the lack of transparency of DT's internal offers and the absence of a corresponding offer to them makes it virtually impossible for them to launch a flat rate themselves. This, however, is vital in order for them to stay in the market. They stress the importance of regulatory intervention to ensure that DT offers an interconnection flat rate reflecting the underlying costs comparable to the flat rate which it offers to its end-users. DT pointed out that it offers the contract with its subsidiary (T-Interconnect Online Connect which comprises the AfOD) to all competitors.

GREECE

OVERVIEW

Commission Decision 97/607/EC authorised Greece to maintain the exclusive rights of OTE, the Greek incumbent, to provide public voice telephony services and public telecommunications networks until 31 December 2000. Greece is the last EU Member State to fully liberalise its telecommunications markets. There is a broad perception among operators that the process of liberalisation has been very slow and that Greece did not make the best use of its deferment to establish a fully competitive telecommunications market. Some new entrants feel that they are still dependent on the incumbent, and that the national regulatory authority in charge of supervising the market has not been strong enough to prevent abusive tactics. The telecommunications market value has seen a growth of 13% (EU average growth: 9%) and is estimated to 4,318 million Euro. The penetration rate of mobile services is estimated up to 49% of the population, marking an increase of 23% since last year. Internet penetration is estimated to 4% of the total population.

In view of the imminence of full liberalisation, and in response to a long-standing demand from the industry, significant changes have recently taken place in the policing of the telecommunications sector. In particular, a new law has been adopted transferring licensing powers from the Ministry of Transport and Communications to the *?????? ?p?????? ???ep?????? ?? ? ?a? ?a??d??µe?? ?* (EETT), both of them being the national regulatory authority in Greece. Parliament is shortly expected to pass a new Telecommunications Act consolidating the existing rather dispersed laws and regulations and transferring the remaining regulatory powers to the EETT, exercised so far by the Ministry. The latter will retain responsibility for drafting legislation and setting policy objectives. Until recently, the EETT's main role was to advise the Minister for Transport and Communications, and it enjoyed only limited powers to regulate the telecommunications markets. In the light of its serious staff shortages and lack of needed expertise, the new tasks assigned to the EETT represent a major challenge.

In the last year considerable progress has been made on the transposition of the EC Directives into Greek law. However, there have also been shortcomings in the implementation of the existing legislation. In particular, the first licence for the provision of fixed infrastructure for liberalised services was granted only recently, and, with only a few months to go before full liberalisation, no licence has been granted to an operator to compete with the incumbent in the voice telephony market. The licensing conditions for the provision of voice telephony and related public infrastructure, which were due to be published by the end of June, are now expected to be published in mid-October 2000, and potential investors therefore still have no information on the terms and conditions for obtaining such licences. However, the regulator expects that a high number providers of closed user groups will offer voice telephony services as soon as the market is liberalised. In the mobile sector, following long discussions on the extension of the GSM licences to the provision of DCS 1800 services, it seems that an experimental licence was given to one of the two GSM operators. Two hundred service providers are currently operational under a general authorisation providing various services except for voice telephony and its supporting infrastructure. A large number of service providers have been authorised to provide services. In the satellite market, three

licences were granted and another one is about to be granted to provide both telecommunications and broadcasting services. Further, nine applications for satellite licences are currently under review.

During the past year, the national regulatory authority conducted a number of public consultations, inviting the industry to express its views and be involved in the regulation of the telecommunications markets. In particular, the regulator recently held a public consultation on the efficient allocation of radio frequencies and licensing procedures, and this might lead to the award of (at least) one additional mobile licence. At present, the regulator is conducting consultations on the granting of licences to provide wireless local loop, third-generation (3G) mobile services, and DECT services. Following the conclusion of the public consultation for wireless local access, five national narrowband and four national broadband licences are expected to be issued before the end of 2000. Outstanding issues noted in the Fifth Implementation Report, such as spectrum management and the establishment of a National Numbering Plan, have still not been settled.

NATIONAL REGULATORY AUTHORITY AND APPEALS

Regulatory functions have hitherto been shared by the Ministry of Transport and Communications (the "Ministry") and the "EETT". The Ministry was responsible for setting policies, drafting telecommunications laws and regulations, granting licences, and managing spectrum. The EETT advised the Minister and was responsible for supervising telecommunications markets, granting authorisations, and adjudicating complaints filed by operators. Under a new law recently adopted by Parliament, licensing powers exercised by the Ministry will be transferred to the EETT. The remaining regulatory powers such as spectrum management, numbering, domain names, frequency allocation, rights of way exercised at present by the Ministry will be transferred to the EETT by the new Framework Law expected to be enacted by the Parliament. The Ministry will retain responsibility for setting telecommunications policy and drafting laws. Following the transfer of powers, some new entrants feel that there will be no administrative authority to supervise the EETT, whose decisions are, however, subject to court appeals.

The 5th Implementation Report noted that a number of EETT staff had been seconded by the incumbent, putting EETT's independence at risk. Some new entrants are still concerned about this risk. However according to OTE, most of the staff which it had seconded to the EETT have now returned, with only four employees remaining temporarily at the service of the EETT, at the latter's request, providing only secretarial support and not being involved in decision-making.

New entrants are concerned that the EETT is not adequately staffed: it employs very few staff, and the staff does not acquire the proper expertise. The Commission has been informed that the EETT has recently recruited and is also at present recruiting additional expert staff. New entrants are concerned about provisions in the draft new Framework Law permitting the secondment to the EETT of staff from public-sector companies and the Ministry, putting EETT's independence at risk. According to the EETT, its independence is not at stake since under the draft Law this secondment would result to permanent employment and refer to personnel originated from companies and services that are not involved in telecommunications business.

EETT decisions are subject to judicial review by the administrative courts. Judicial procedures often require long periods before a determination is made. EETT decisions can be enforced pending an appeal, unless the appellant asks the court for an injunction suspending the decision, giving good reason for such a request. The court has discretion to allow the EETT decision to be implemented pending the outcome of the appeal, or to issue an injunction suspending implementation of the decision until it has ruled on the appeal.

Difficulties have been reported in the relationship between the incumbent and the EETT, although relations have improved. During the past year, the incumbent repeatedly complained to the EETT that many operators who had been authorised to provide services to closed user groups were providing long-distance and international voice telephony services, although OTE still enjoyed exclusive rights to provide such services. OTE considered that the EETT did not react effectively, and therefore decided to seek redress in the national courts. The EETT refutes this allegation suggesting that it always reacted impartially and effectively despite shortages of its stuff.

LICENSING

Following the transposition of the Licensing Directive last year, the timetables for granting licences and authorisations were set in conformity with the Directive. The transposition introduced a change of the old regime, which allowed longer periods for the award of a licence. However, according to some new entrants, the practical implementation of the Licensing Directive has not been easy. In particular, they claim that the procedures for licensing and expanding networks are lengthy and do not address the needs of the market. This allegation is refuted by the EETT, which considers that neither of the procedures is lengthy. The EETT claims that so far, a high number of operators has been registered to provide services under a general authorisation within two weeks.

With regard to the time required to grant a licence, new entrants' allegations are based on cases involving the licensing of infrastructure, the award and allocation of frequencies, DCS 1800, and satellite licensing. One new entrant has complained that the procedure for obtaining approvals to activate base stations to provide mobile services can take up to a year, and believes that the incumbent's mobile subsidiary receives more favourable treatment than other operators, resulting in shorter approval times. In particular, more than 100 applications for the approval of base stations filed since November 1999 have not yet been approved. These delays adversely affect the roll-out of networks in urban areas, where the incumbent's subsidiary has a competitive advantage, and have been the cause of technical problems undermining the quality of service offered by the new entrant. So far, according to the new entrant, the Ministry has given no official reply concerning the reasons for the delays. According to the Ministry, applications for approval are being processed by working groups at present. The Ministry refutes the allegation for a favourable treatment of the subsidiary of the incumbent. In particular, it reports that a high number of applications for approval of the latter (almost double than its competitors) are still pending. In addition, the Ministry claims that it has been heavily occupied coping with complaints of, among others, citizens, schools and local authorities regarding health risks related to base stations.

There is a scarcity of alternative infrastructure in Greece. As a result no competitor is, at present, in a position to provide services on an equal footing with the incumbent. The first licence for the establishment of an alternative network to offer liberalised services in Greece was granted only a few months ago. The granting of it took substantially longer than the time limit laid down in the Licensing Directive, as the EETT requested additional information which is considered necessary for the application to be considered complete. Another licence has been also granted to establish a backbone network.

New entrants report that in certain cases, the regulator requested further information in order to grant a licence, and as a result the applications for licences have been pending for longer periods than envisaged in the Directive. In one case, an application was filed with the regulator in January 2000 and the latter requested further explanations regarding the provision of services in Greece, thus creating obstacles to the implementation of the operator's commercial strategy (for S-PCS). The licence is about to be granted at present. According to the EETT, although that detailed information on the requirements of law for applying for a licence is public, some operators fail to meet all

requirements in a timely manner. Therefore, applications cannot be considered as complete at their filing time and the time limit for granting a licence starts counting only at the time that the applications are complete. Incomplete applications has been therefore the main source for delays experienced so far in granting licences. So far, according to the EETT the time limits required by law have been followed.

A concern was expressed that even after a licence has been granted, an operator still requires many different authorisations before it is in a position to provide services, e.g. authorisations to use frequencies or rights of way, or building permits from the Ministry of Public Works and local authorities. For example, following an application for a licence to provide satellite services submitted to the regulator in 1996, the regulator made several requests for additional information and documentation before it considered the application to be complete, and the licence was not granted until 1999. The operator has still not become operational, since it was required to apply for approval for the earth station equipment and submit an environmental impact assessment before it could install the earth stations specified in the licence. The operator in question was finally granted a licence to operate an earth station in July 2000. As a general rule, the Ministry is required by law to undertake an environmental study to ensure public safety.

Under the Commission Decision granting the deferment to Greece, licensing conditions for the provision of public voice telephony services and networks were supposed to be published by the end of June 2000. However, no such conditions have been published yet. In addition no new licence for the incumbent has yet been published providing for the abolition of its exclusive rights. According to the EETT, the licensing conditions will be published in mid-October. New entrants consider that, the late publication of licensing terms and conditions for the provision of voice telephony and supporting infrastructure will not allow full competition to be established on 1 January 2000, as although operators will be entitled to provide services this will not be practically feasible. However, the EETT expects a high number of closed user group services providers (at least 20) to provide voice telephony services and therefore intensive competition in the voice telephony market is anticipated upon the date of full liberalisation.

As regards the operation of broadcasting networks, no exclusive rights are retained for ERT, the state-owned channel. Private channels have their own broadcasting networks.

INTERCONNECTION

The incumbent submitted its Reference Interconnection Offer (RIO) for 1999 to the EETT for approval. The RIO was not finally approved by the EETT because the incumbent did not take into account certain comments made by the EETT. At present the RIO of 1998 is still applicable. It appears that there was a disagreement between the incumbent and the mobile operators on fixed-to-mobile interconnection charges, and that the RIO for 1999 could therefore not be published. The mobile operators set the interconnection rates in accordance with their individual licences. However, the incumbent claims that there is a big difference between the rates it charges for mobile-to-fixed interconnection and those that the mobile operators charge for fixed-to-mobile interconnection and 94% of the complaints it receives from its customers relate to the high charges for fixed-to-mobile calls.

Interconnection rates for mobile-to-fixed calls have also been a source of concern to both the incumbent and the two mobile operators. OTE claims that those rates proposed in its RIO are set by reference to the EU best current practice. The mobile operators, however, claim that the interconnection rates currently charged are not within the EC benchmarks. Cost studies on this issue

have been conducted at the initiative of the EETT and the EETT is discussing the issue with the operators.

Concerns were reported that interconnection is currently organised around a fixed-to-mobile framework instead of a fixed-to-fixed framework. All the RIOs proposed by the incumbent cover only mobile and personal communications. EETT claims that this happens because the incumbent enjoys exclusive rights in the fixed voice telephony. New entrants report that the incumbent should offer special network access, and the EETT has never forced the incumbent to publish its tariffs and the elements of its network. However, the EETT claims that it has never been informed of any objection of the incumbent to offer special access.

Under the Commission Decision granting the deferment to Greece (97/607/EC), the incumbent was obliged to publish rates for interconnection with other fixed networks for the provision of voice telephony by the end of June 2000. The incumbent has submitted these rates to the EETT, but it has not yet submitted the RIO providing details of all its offerings relating to interconnection with other fixed operators. New entrants are concerned that since they do not have access to information such as the types of interconnection that will be offered, the configuration of the incumbent's network and, in particular, which switches will be available for interconnection, it will be difficult for them to determine their switch location and points of interconnection. According to the incumbent the RIO for 2001 is expected to be submitted to the EETT in October 2000, therefore as soon as the EETT publishes the licensing conditions for the provision of voice telephony and supporting infrastructure.

Delays have been experienced in the provision of facility sharing by the incumbent to the mobile operators. In spite of the lengthy discussions which have been conducted at the initiative of the EETT for almost two years, the incumbent is still not providing facility sharing. The incumbent claims that it recently made a firm decision to provide this service to them, on request, and that it is at present conducting negotiations with the operators to reach an agreement. The mobile operators are concerned that the incumbent's mobile subsidiary makes extensive use of the facilities of the incumbent.

The Fifth Implementation Report noted concerns about the provision of interconnection points. No particular concerns have since been expressed by the operators, except in one case of delay in their provision. According to the incumbent, it currently provides all the interconnection points requested, and takes the necessary measures to satisfy demand for additional points.

LOCAL ACCESS

The draft Framework Law provides as implementation date for the unbundling of local loop (ULL) the 1 January 2001. According to the EETT, relevant regulations are currently being prepared and are expected to be finalised before the end of year 2000. However, according to new entrants, currently no policy on the unbundling of the local loop (ULL) has been defined. There are no regulatory measures providing for access to the incumbent's local loop by 31 December 2000 under transparent and non-discriminatory conditions. New entrants expect access to be limited to the incumbent's unmanaged leased lines, which would result in high operating costs for them. The incumbent is not in favour of the unbundling of its local loop, and finds its implementation particularly difficult, especially if it has to introduce the service by 1 January 2001. It says it will be prepared to offer this service by 2002. The EETT held a public consultation on ULL. The draft Framework Law provides that SMPs will be obliged to provide this service for four years starting from its adoption.

No licences have so far been granted for the provision of wireless local loop (WLL). A regulation has been adopted recently following a public consultation on the allocation of frequencies and the procedures for awarding licences to operate in the 3.5 GHz and 26 GHz frequency bands. According to the regulation, it is expected that by the end of 2000 five national narrowband and four national broadband licences will be issued under a competition selection procedure. However, some concerns have been expressed that the above regulation will further obstruct competition in the local market. In particular, new entrants are concerned that a licence in the bands of 26GHz and 3.5GHz will be reserved for the incumbent which will not need to participate in any licence allocation procedure although it is expected to pay a high amount for the licence. According to the incumbent, the right to use frequencies in the 26 GHz band was granted to it through its individual licence already in 1995. A concern was also expressed regarding the geographical coverage of the licences to be issued which will all be national. According to the EETT, in the forthcoming auction for the award of WWL licences, the incumbent will not be allowed to apply for a licence with more bandwidth in the 26 GHz (2X112 MHz) and 3,5 GHz (2X28) but is limited to apply for a licence with less bandwidth in the 26 MHz (2X56 MHz) and 3,5 GHz (2X14 MHz). The EETT also states that for this licence OTE will be required to pay the equivalent of the highest bid per MHz made by the other operators participating in the auction. The EETT also stated that so far no operator has developed a network to provide WLL and the new entrants are subject to the same conditions for licensing.

UNIVERSAL SERVICE/CONSUMERS/USERS

According to the incumbent, under the new law expected to be adopted soon, it will continue to be designated as the universal service provider following full liberalisation, at least for 2001. The Ministry has launched a study of the cost of providing the universal service expecting the results of it by end of October. According to the incumbent, the cost of providing the universal service is particularly high in Greece, due to its special geographic conditions (islands, mountains).

MOBILE SERVICES INCLUDING THIRD GENERATION AND ROAMING

As indicated in the Fifth Implementation Report, the lack of a frequency plan and the unclear division of responsibilities between the Ministry and the EETT have been the source of problems for frequency allocation and management. Under the existing laws, the Ministry of Transport and Communications is responsible for the allocation and management of the frequency spectrum. Last year the Ministry undertook to carry out an extensive study of frequency management. No results have so far been announced. The National Frequency Plan has been already updated.

The Fifth Implementation Report also noted concerns about the provision of microwave links. It appears that the situation has not changed substantially since then, and although some efforts have been made to resolve long-standing problems related to the management of the frequency spectrum, it seems that operators are still experiencing the same problems. In particular, complaints have been reported that the incumbent uses microwave frequencies allocated to another operator through the latter's licence, as a result of the inefficient management of the frequency spectrum. The operator in question has resorted to using an alternative frequency band not allocated to it. It seems that the Government has endeavoured to settle this issue by amending the licence of the operator in question so that it will no longer be entitled to use the frequency bands referred to in its licence, but will be entitled to use the alternative frequency bands it has been using without authorisation. This situation affects adversely the conduct of the operator's business, which relies on the operator's own transmission network, and, as mentioned in the Fifth Report, operators feel that these discrepancies favour the incumbent, which does not face the same difficulties.

There are currently three operators providing mobile services in Greece: the incumbent's subsidiary which offers DCS 1800 services, and two other operators providing GSM 900 services. There have been long discussions between the Ministry and the GSM operators regarding the latter's interest in extending their licences to provide DCS 1800 services. So far, none of the licences has been extended. However, in July 2000, an experimental licence to provide DCS 1800 services was granted to one of the GSM operators. Following a public consultation by the regulator inviting views on the licensing procedure and the efficient allocation of frequency bands, the award of at least one more mobile licence is under consideration.

According to a new entrant, the award procedure for wireless local loop laid down in the licensing regulation was abandoned following the consultation in favour of a selection procedure. This could damage the interests of this particular operator, which claims that it has already made investments based on the belief that it is entitled to receive a licence on a "first come, first served" basis. The operator also claims that the Ministry failed to comply with its obligation to inform the applicant whether it had accepted or rejected its application.

According to the Government, the basic principles of the regulatory framework for third-generation (3G) mobile systems have already been established. The frequency bands required for the provision of 3G services are not currently available, but are expected to be available in June 2001. The regulator carried out an informal public consultation to invite the views of the industry on the introduction of 3G systems. A formal one will follow to allow the Ministry to determine the number of individual licence that will be granted.

The EETT recently adopted its conclusions following a public consultation concerning the granting of licences for the provision of DECT services. It seems that a number of operators are interested in applying for a licence to operate DECT services. However, the regulator has not yet announced the number of licences it intends to grant, nor the timetable. A public consultation is expected to be held by the EETT concerning the provision of services, operating in the 40—43,5 GHz band. So far, the government did not favour the granting of licences to operate in this band since no CEPT recommendation provides for such operation.

TARIFFS

According to the incumbent, by the end of 2000 its tariffs will have been substantially re-balanced, as a result of its sustained efforts over a number of years. Rates for local calls were increased gradually to avoid sudden increases which would have caused discomfort to users. At the same time, long-distance and international call rates have been reduced substantially.

COST ACCOUNTING

The regulator asked the incumbent to apply a cost accounting system in line with the principles laid down in the Directives. In response, the incumbent decided to develop a new accounting system, which is currently under consideration. The incumbent is expected to publish the results for the provision of voice telephony by the end of the year, based on the fully allocated costs (FAC) method. By the end of 2001 the incumbent expects to be able to apply a cost accounting system based on the Long Run Incremental Cost methodology. The EETT has not yet approved the cost accounting system.

LEASED LINES

No particular problems have been reported in relation to the delivery and availability of leased lines. The incumbent has reported a substantial reduction in the fees for leased lines, and especially those of 2 Mbits.

NUMBERING

In the Fifth Implementation Report, the Commission highlighted the lack of a National Numbering Plan. No progress has been made towards establishing such a plan since then. However, the NRA claims that preparatory works for the establishment of a National Numbering Plan have been concluded and all market demands for allocation of numbers will be fully satisfied. At present, all geographical and non-geographical numbers are still allocated to the incumbent, and according to the EETT this will remain so until the end of the deferment period (31.12.2000). However, the incumbent insists that, despite this arrangement, all requests for numbers have so far been met. Under the Framework Law currently in force, responsibility for administering numbers lies with the regulator and, according to the EETT, the law is implemented, since it carries out this responsibility. New entrants are concerned that the allocation of all non-geographical numbers to the incumbent limits their ability to offer such services.

The incumbent says that it is now in a position, from a technical point of view, to provide carrier pre-selection. However, no operator has yet asked OTE to provide this service. Neither the incumbent nor the mobile operators offer number portability. Under the Directive, Greece has the right to defer the implementation of number portability for two years.

RIGHTS OF WAY

It appears that there is no clear regulatory framework defining the rights and obligations of operators who lay undersea cables. According to new entrants this affects the provision of direct interconnection between mobile operators' networks and international optical fibre cable landing stations. However, the EETT points out such interconnection is regulated by the law transposing the Interconnection Directive. In addition, given the geographical particularities of the country, some operators consider that the provision of cable landing rights to provide connectivity would be a good alternative to terrestrial domestic networks, and would allow them to compete with the incumbent on an equal footing. It seems that problems experienced in the past in obtaining rights of way on land will finally be resolved by the new Telecommunications Framework Law. However, under the existing framework some operators are concerned that they are at a competitive disadvantage compared with the incumbent, since the latter enjoys a broad right of access to ducts, conduits and public rights of way. EETT claims that, there is no provision either in the incumbent' s licence which confers to it special rights of way or in the legislation currently in force. The latter treats all operators on an equal footing. According to the EETT, efforts are made to promote facility sharing where there is no viable alternative to obtain access rights. EETT's power to intervene is further enforced under the draft Framework Law. Considerable problems are also reported by operators who have to negotiate directly with the local and other authorities involved and with individual landowners, and who therefore experience delays in obtaining rights of way, which create obstacles to the promotion of their business activities.

DATA PROTECTION

The Data Protection Directive has been transposed. The application of the Data Protection Directive is being monitored by the EETT and the Data Protection Authority.

Some operators are concerned that the incumbent's approach to directory business does not promote competition. In particular, they claim that it has refused to provide access to its directory listings, citing data protection concerns, and finally providing a "business only" listing to its competitors. According to the incumbent, the Data Protection Authority appreciates the form of data protection it provides, especially regarding the confidentiality of communications and personal data transmission. The incumbent also claims that in some cases there is a conflict between the laws on data protection and the telecommunications regulations, as in the case of the provision of subscribers' personal data for the publication of telephone directories.

INTERNET

The penetration of Internet services is still very low: only 4% of the population. There are approximately 120 Internet service providers (ISPs) serving local markets, and some 15 offering service at a national level. The incumbent's subsidiary has quite a high share (40%) of both the residential and the business markets. Fifteen ISPs provide backbone networks. According to the EETT this market share of the incumbent's subsidiary is lower if taken into account the number of service providers which offer internet access free of charge. EETT states that internet rates in Greece are quite low. The incumbent's subsidiary considers that it charges very low fees (GRD 120/hour during peak hours and GRD 60/hour during off-peak hours) for access to the Internet in order to boost its expansion. The NRA points out that low rates are currently offered by all internet service providers and all service providers benefit from the low rates of the incumbent's network.

There have been complaints about the provision of ISDN lines to interested ISPs. The incumbent admits that there have been some delays in the delivery of ISDN lines as a result of the substantially increased demand for such lines, but claims that all requests have now been satisfied.

SPAIN

OVERVIEW

Following the liberalisation of telecommunications on 1 December 1998, 84 voice telephony licences and 28 licences for the operation of public networks were granted. The presence of new players competing in the market has resulted in substantial growth in terms of investment, development of infrastructure, new services, job creation, etc.

Spain's telecommunications market grew by 19.2% in 1999, and is expected to grow by between 11.5% and 14.7% in 2000. Total investment in 1999 was 34.84% higher than in 1998. The strongest growth in investment was in the mobile sector (96% growth compared to 1998) and by the cable operators (increase of 274% compared to 1998). Investment in infrastructure increased by 75% compared to 1998.

Fixed telephony is the market sector that has seen the biggest influx of new players since liberalisation. New entrants have mainly focused on long-distance, international and fixed-to-mobile calls. These are the segments where Telefónica has experienced the biggest loss of market share (between 10 and 11%). Competition in the fixed telephony sector is set to increase further during 2000 due to the implementation of carrier pre-selection and number portability, the granting of 6 wireless local loop licences, and the expansion of cable TV operators. There are 27 cable operators providing the voice telephony service. In 1999, the penetration of fixed telephony was around 43%, an increase of 1% since 1998.

The mobile telephony market grew significantly in 1999: total revenues (including interconnection revenues) increased by 53%, call minutes increased by 76.6%. This high rate of growth is expected to continue in 2000 and 2001, with the entry of a fourth mobile operator using IMT-2000/UMTS technology. The number of mobile users rose to around 21 million in August 2000, with a penetration rate of 53%. Mobile telephony has grown by 93% since August 1999.

With a view to progressing towards full competition on the Spanish market, the Spanish authorities adopted Decree-Law 7/2000 of 23 June 2000 on Urgent Measures in the Telecommunications Sector. These measures include:

- the extension of pre-selection to local calls,D1
- local loop unbundling, including unbundled access and shared access to the local loop of dominant operators of public telephone networks,
- the obligation for dominant operators to present cost accounting by 31 July 2000, in accordance with criteria adopted by the authority,
- the obligation for dominant operators to offer a flat-rate tariff for Internet access.
- the obligation for dominant operators to offer monthly tariffs for 600 minutes of local calls (off-peak or at any time) at the prices specified in the Decree-Law.

NATIONAL REGULATORY AUTHORITY AND APPEALS

Following the general election of March 2000, responsibility for telecommunications issues within the Spanish Government was reorganised. The Ministry of Economic Affairs is now responsible for tariffs and for supervision of the Telecommunications Market Commission (Comisión del Mercado de las Telecomunicaciones - CMT), while the new State Secretariat of Telecommunications and the Information Society, which forms part of the new Ministry of Science and Technology, is responsible for regulation, spectrum management, activities relating to the information society, external relations and supervision of telecommunications operators. The State Secretariatof Telecommunications and the Information Society comprises the Directorate General for Telecommunications and Information Technologies and the Directorate General for the Development of the Information Society. The Government Executive Committee for Economic Affairs (Comisión Delegada del Gobierno para Asuntos Económicos) is also involved in the fixing of the prices of the dominant operator.

The competition authorities (Competition Court and Directorate General for Competition) retain responsibility for competition.

According to the Spanish authorities, the new arrangements represent an improvement in the division of responsibilities between the various bodies responsible for telecommunications. They stress that the division of responsibilities for competition and tariff issues is now clearer. CMT refutes new entrants' claims that it is excessively politicised, saying that it functions as a technical and not a political body.

New entrants complain about the time that the authority takes to resolve their complaints. CMT says that such delays have two main causes: the shortcomings which it claims are often found in the texts of the complaints lodged, which oblige it to request further data or documentation from the complainants, and the procedures which it is legally required to follow: hearing of interested parties, consultation of various bodies, etc.

In accordance with the provisions of Law 6/1997 on the Organisation and Operation of the General State Administration, Law 30/1992 on the Legal Arrangements for Public Administrations, and Law 12/1997 on the Liberalisation of Telecommunications, decisions adopted by the State Secretary for Telecommunications and the Information Society and by the CMT are subject to appeal before the courts. Citizens can, if they wish, lodge a protest with the body which adopted the Decision (Ministry or CMT) before taking the matter to court.

LICENSING

Following the liberalisation of telecommunications in Spain, there are two different licensing systems:

- licences granted under the old system, which must be converted into and aligned with the new licences,

- licences granted in accordance with the 1998 General Telecommunications Act.

The complexity of the system for converting licences, laid down in the "First Transitional Provision" of the Act, and the new ministerial structure have delayed the process of converting licences, which has still not been completed.

Licences granted under the old system must be converted by the Authority that granted the original licence. CMT and the Ministry of Science and Technology are working in this process. They stress

that the delay in the process of converting the licences granted under the old system is largely due to the procedure which must be followed to ensure that the rights of all interested parties are respected. This procedure involves hearing the various market players (operators, consumers) and obtaining the opinion of the Council of State. The process should be completed by the end of 2000, except as regards Telefónica's fixed telephony licence: the large number of operators and other interested parties who must be heard before Telefónica's licence is converted will delay the procedure for several months longer than for the conversion of the other licences.

New licences have been granted for wireless local loop services, TETRA (digital mobile radio in a closed user group), TFTS (mobile communications with aeroplanes), third-generation mobile, and digital radio and television.

84 licences for voice telephony (A and B licences), 37 licences for the operation of public networks (C licences), and nearly 700 general authorisations have been granted.

INTERCONNECTION

The new reference interconnection offer (RIO) for 2000 was adopted on 25 May 2000.

The new RIO contains various changes with respect to the old one. The main change is the elimination of the differences in the 1999 RIO between interconnection tariffs for telephone operators without a network (type A) and with a network (type B). It also incorporates the new structure of the regulated retail tariffs for fixed voice telephony services, comprising only two types of charging period: normal and off-peak. In determining the new interconnection prices, CMT has paid close attention to the different economic incentives of the different types of interconnection. In general, prices for double tandem conveyance have fallen, prices for single tandem conveyance are more or less unchanged, and prices for local traffic have fallen slightly. Although they are lower this year than last year, interconnection prices for double transit are still higher than the benchmark. The NRA says this is because these prices were too high and it is not easy to adjust them quickly.

New entrants complain about the new interconnection prices for single tandem conveyance in off-peak hours, and about Telefónica's pricing policy in general, as Telefónica has launched several price plans which the new entrants consider predatory. They consider the 30% "inefficient traffic" surcharge for provincial and local traffic for operators who have had a licence for more than a year to be unjustified. Moreover, new entrants consider that interconnection prices do not reflect Telefónica's real costs, and that this is aggravated by the absence of true cost accounting by the dominant operator.

For its part, the incumbent complains that the substantial reduction in interconnection prices reduces its profit margin.

CMT stresses that its aim when fixing interconnection prices is to ensure that they are cost-oriented. However, this is very difficult to achieve, because the incumbent still does not publish full accounts showing unbundled costs. Therefore, to ensure that prices are cost-oriented, it has been necessary to carry out a comparative analysis of prices in Spain and in other Member States.

CMT has expressed its intention to study and consider fixing interconnection prices on the basis of capacity rather than consumption once it has all the accounting information that the incumbent has yet to provide.

Article 6 of Decree-Law 7/2000 provides for CMT to propose the modifications needed to the 2000 RIO to adapt it to the new Internet and telephone price schemes by mid-September. On October 2000 the Government Executive Committee for Economic Affairs approved the following modifications to the RIO: a new type of metropolitan interconnection is introduced, along with per-minute charging of local metropolitan interconnection and single transit for the provision of the local telephony service. Flat-rate interconnection charges are also introduced to permit competition in the flat-rate for end-users laid down by Decree-Law 7/2000.

LOCAL ACCESS

Between the end of 1999 and 2000, the Spanish authorities granted the following wireless local loop licences: three licences with a bandwidth of 2 × 20 MHz each in the 3.4-3.6 GHz band, and three licences with a bandwidth of 2 × 56 MHz each in the 24.5-26.5 GHz band.

The ADSL service was established by a Ministerial Order of 26 March 1999. Eighteen operators have reached agreement with Telefónica to start providing this service and there are now more than 8 operators actually providing the ADSL service.

Following a complaint on ADSL lodged with the European Commission by an association of new entrants, the Ministry arbitrated by promoting and chairing meetings between the new entrants and the incumbent. These problems were eventually resolved and the complaint lodged with the Commission has been withdrawn.

In accordance with the Commission Recommendation on Unbundled Access to the Local Loop, Article 2 of Decree-Law 7/2000 of 23 June 2000 on Urgent Measures in the Telecommunications Sector requires operators of public fixed telephony networks with significant market power to provide unbundled access and shared access to the local loop by January 2001. In order to reach this objective on time, an ad hoc working party has been working on this subject and a draft Decree regulating access to the local loop has been presented to the Telecommunications Assessment Council (advisory body on which the various market players - operators, consumers, unions, authorities - are represented), which recently presented its comments. Once these comments have been analysed, the Decree will enter the legislative process: opinion of the CMT, opinion of the Council of State, and adoption by the Council of Ministers. This draft law establishes a reference offer which will follow the same criteria as the reference interconnection offer. The first Reference Offer will be extraordinarily adopted, probably in December, by the Ministry on a proposal from the CMT and the prices will be approved by the Government Executive Committee for Economic Affairs.

UNIVERSAL SERVICE/CONSUMERS/USERS

Telefónica is required to provide the universal service until 2005. The NRA has to verify whether the provision of the universal service by Telefónica entails a net cost for the operator. This analysis is in progress. The NRA says that the net cost of providing the universal service cannot be calculated until the incumbent provides true cost accounting data showing unbundled costs.

Should the NRA conclude that the USO entails a net cost and a competitive disadvantage for Telefónica, the latter will be entitled to compensation. The Universal Services Regulation provides that intangible benefits should be subtracted from the additional costs of providing universal service for the purposes of calculating the net cost.

The compensation mechanism consists of a Fund, which CMT would have to manage. For its part, the Ministry of Science and Technology is responsible for regulating the organisation and structure of the Found and the form of the operators' contributions to it. Operators active in the market would finance the Fund.

The Spanish authorities are currently examining what is the most appropriate technology (radio frequencies, use of second- or third-generation mobile) for radio access for the provision of the universal service, which might replace the TRAC (cellular access rural telephony) system currently used, which uses the 900 MHz band.

The General Telecommunications Act includes services to facilitate communication between certain collectives in special social conditions in the list of "compulsory" services which must be provided under certain circumstances.

Consumers can lodge complaints with the Consumer Arbitration Panel (Juntas Arbitrales de Consumo) in accordance with the provisions of Law 26/1984 on Consumer Protection and the relevant secondary legislation. They can also lodge their complaints with the State Secretariat for Telecommunications and the Information Society. Pursuant to Law 26/1984, consumers' associations must be heard when legislative provisions regulating matters which might affect them are being drafted.

MOBILE SERVICES, INCLUDING THIRD-GENERATION AND ROAMING

The Ministry of Science and Technology is responsible for issuing licences for the use of frequencies.

No problems have been mentioned with regard to the management of the frequency plan.

There are 2 GSM licences (Telefónica and Airtel) and 3 DCS-1800 licences (Telefónica, Airtel and Retevisión).

Pursuant to Royal Decree 1486/1994, mobile telephony using analogue technology must be phased out and the frequencies reserved for this service must be freed up according to commercial demand for the GSM service, leading to the complete withdrawal of the analogue mobile telephony service by 1 January 2007.

Decree-Law 7/2000 requires the Ministry of Science and Technology to draw up a report by 31 October 2000 setting out possible ways of increasing competition in the mobile market.

The Spanish Government has made the necessary changes to the National Frequency Allocation Framework (CNAF) and, following a number of invitations to tender for the use of frequencies to provide various services, has granted licences for the following services based on the use of radio frequencies: third-generation mobile; wireless local loop; digital mobile radio in a closed user group; mobile telephony service for communications with aeroplanes (TFTS); and digital radio and television.

The Ministerial Order setting out the specifications for the third-generation mobile service and inviting tenders for 4 licences was adopted on 10 November 1999. The Spanish authorities have chosen the "beauty contest" procedure for the award of these licences, rather than an auction. The fees for the use of frequencies for third-generation mobile telephony were set at ESP 21.75bn (€130 720 132). The four licences were awarded on 13 March 2000 to Telefónica Servicios Móviles, Airtel, Retevisión Móvil and the Xfera consortium led by the Finnish operator Sonera.

National roaming is guaranteed by the obligation for operators who hold a GSM licence to provide national roaming to operators who obtain a third-generation mobile licence. One of the criteria for the assessment of the bids made in the "beauty contest" was the provision of international roaming, particularly with EU countries.

In January 2000, a licence for the establishment of a telecommunications network and the operation of the mobile telephony service for communications with aeroplanes (TFTS) was granted to AIRTEL.

Frequencies for digital radio and television services were granted between the end of 1999 and March 2000.

The Spanish authorities have informed the Commission that the frequency bands for the S-PCS service have now been cleared.

TARIFFS

Following the recent reorganisation, the Ministry of Economic Affairs shares responsibility for tariff issues with the Government Executive Committee for Economic Affairs.

In November 1999, by means of a Royal Decree, the authorities indicated that a system of price caps would apply to the incumbent from August 2000.

A new Decree-Law (Decree-Law 7/2000 of 23 June 2000) set a flat-rate tariff for Internet access, and a set of tariffs, which will enter into force on 1 November 2000, for 600 minutes of local calls (off-peak or at any time) at the prices specified in the Decree-Law.

This new provision also requires operators with significant market power (SMP) to present their cost accounts for the previous year by 31 July of each year.

On 27 July 2000, the Government Executive Committee for Economic Affairs adopted an Agreement establishing a new price framework for services provided by Telefónica.

This Agreement, in accordance with the previous provisions, establishes a price cap system for fixed telephony, fixed-to-mobile calls, and leased lines supplied by Telefónica. The first period regulated by this system is from 1 January 2001 to 31 December 2002. The new price cap is based on a system of baskets and sub-baskets of services. There is one basket for telephony and another for leased lines. A price cap has been set for telephony for two years, based on several sub-baskets: line rental charge, local, regional and international telephone calls, fixed-to-mobile calls, etc. The NRA says that the price cap system covers two thirds of the incumbent's prices and that the rest are covered by the system of maximum prices, which are not based on a basket of services. A specific procedure for the approval of the incumbent's tariffs has been adopted for these first two years to avoid a price squeeze for new entrants. The system for leased lines is designed to align prices on the Commission's benchmark prices.

Competition in the voice telephony market, both fixed and mobile, has resulted in a general fall in prices. The average price per minute of fixed telephony was ESP 14.22 (€0.09), a decrease of 7.2 % compared to the previous reference period.

In accordance with Decree-Law 7/2000 of 23 June 2000, Telefónica must present its cost accounts by 31 July each year to the CMT and the Ministries of Economic Affairs and Science and

Technology. By July, CMT had only received the accounts of Telefónica regarding historical costs. The accounts concerning current costs are expected by October.

Following a complaint from Telefónica about the absence of tariff re-balancing and the need to increase the price of local calls, CMT has indicated that it is in the process of analysing Telefónica's new cost accounts and its compliance with the principles which it adopted in July 1999.

COST ACCOUNTING

Royal Decree 1912/1997, which approves the Telephony Service Technical Regulation, Articles 26, 27 and 34 of the General Telecommunications Act, Royal Decree 1651/1998, which approves the Interconnection, Access and Numbering Regulation, and Royal Decree 1736/1998, which approves the Universal Service Regulation, transpose the Community provisions on cost accounting set out in the Interconnection and New Voice Telephony Directives.

The Resolution of 2 November 1995 laid down the first cost accounting criteria applicable to Telefónica. Following liberalisation, and in order to update the accounting criteria, on 15 July 1999 CMT laid down the new principles, criteria and conditions for the development of the cost accounting systems of dominant operators.

The cost accounting system adopted by CMT is a multi-standard one providing for the determination of the costs of each service for each period in accordance with the following standards: fully distributed historic costs, fully distributed current costs, and long-run incremental costs.

LEASED LINES

During 1999, several new entrants started to provide leased lines. Turnover on the Spanish leased lines market rose to ESP 136bn (€817 million). Telefónica's market share fell by 6.7% to 91.7%.

New entrants continue to complain about the high price of leased lines. The Agreement of the Government Executive Committee for Economic Affairs of 27 July 2000 introduced a system of price caps on leased lines (see above) aimed at aligning the prices of leased lines on the European Commission's benchmark prices.

The Agreement of the Government Executive Committee for Economic Affairs of 27 July 2000 reduced the prices of local analogue leased lines by 16% and the prices of digital lines (64 kbit/s, 2 Mbit/s and 34 Mbit/s) by 7.5% for 2001 and 2002.

NUMBERING

In accordance with Directive 97/33/EC, as amended by Directive 98/61/EC, Spain has a deferment until 1 December 2000 to implement carrier pre-selection (CPS) and number portability. However, the Spanish authorities have brought this obligation forward by requiring these services to be available by February 2000 at the latest.

In view of the expected delays in implementing CPS by the date initially set (30 November 1998), Royal Decree-Law 16/1999 of 15 October 1999 established a new timetable. On 4 November 1999, CMT established the administrative procedures for CPS and set an implementation timetable requiring this service to be available in all of the dominant operator's digital exchanges by 1 February

2000. Royal Decree-Law 7/2000 of 23 June 2000 provides that CPS must be available for local calls by 15 November 2000.

The problems that new entrants have encountered in obtaining these facilities gave rise to a number of complaints lodged with CMT, which imposed a ESP 430 million. (€2 584 352) fine on Telefónica.

New entrants have complained about delays in the provision of CPS, and stress that Telefónica should devote greater resources to setting up this service. For its part, the incumbent justifies the delays by the speed with which it was required to implement CPS and the absence of defined procedures for managing and sharing the costs. It claims that it is impossible to comply with the obligation imposed by CMT to meet an unlimited number of requests for CPS.

Following these complaints, in July 2000 CMT established a queuing system to manage the backlog of requests. The system allowed the incumbent to respond to new requests outside the general time limit laid down by CMT (5 days) but to virtually eliminate the waiting lists. The costs of CPS are to be shared by agreement between operators, but until the incumbent finishes analysing its costs and reaches an agreement with the other operators CMT has fixed a provisional price of ESP 1 000 (€6.01) per request. If no agreement is reached, CMT will decide.

In November 1998 CMT promoted the setting-up of a forum on number portability in which all interested parties participate. As a result of the work of this forum, in May 1999 CMT adopted the technical specifications for fixed network number portability. Number portability has been in operation since 1 January 2000 in accordance with Decree-Law 16/1999 of 15 October 1999 (mobile line number portability is to be introduced in July 2000).

RIGHTS OF WAY

Rights of way are regulated by the General Telecommunications Act and the Universal Service Regulation. The latter draws a distinction between general right of way (the right of way of operators who have obtained a licence for the establishment of a public network, subject to certain conditions) and specific right of way (the right of way of operators of public networks once they have assumed certain public service obligations). Operators who hold a specific right of way must obtain authorisation from the (public or private) owner of the land in order to establish the network. Obtaining a licence to establish a network (type B or C) entitles them to use compulsory purchase powers.

The major differences in the provisions regulating public property in different towns and villages create confusion and lead to substantial delays for operators seeking to build networks. The Spanish authorities are currently examining the possibility of introducing horizontal provisions to resolve the problems created by the existing differences between the measures adopted and the taxes imposed by the various local authorities for the occupation of regional or municipal public land.

In certain cases, operators are obliged to share infrastructure in the general interest or in order to protect the environment. In this case, the parties concerned must reach a technical and commercial agreement. If they fail to reach agreement, CMT can impose terms on the parties to the dispute. CMT has already adopted several Resolutions stating the conditions for the sharing of infrastructure. The Ministerial Order of 25 May 1999 regulates the shared use of public roads.

In a few cases, there has been slight discrimination in the granting of rights of ways in favour of certain cable operators, where the local authorities consider that the establishment of their networks can stimulate regional development because they have extensive coverage requirements.

DATA PROTECTION

The Telecommunications Data Protection Directive was transposed into Spanish law by the General Telecommunications Act and by Royal Decree 1736/1998 of 31 July 1998 on universal service and other public obligations for the operation of networks and the supply of telecommunications services

A new Data Protection Framework Law was adopted in December 1999: Law 15/1999 of 13 December 1999 on the Protection of Personal Data (Ley Orgánica 15/1999, de Protección de Datos de Carácter Personal). This new Law established a framework of more severe penalties for offences in the field of data protection.

The interception of communications is an offence, except where there is a court order in connection with criminal investigations. Operators are required to take appropriate measures to safeguard network security.

There is an independent data protection authority (the Agencia de Protección de Datos), which coordinates its activities with the telecommunications authorities where appropriate.

The use of subscriber data requires the prior consent of the person concerned. Such consent may be tacit if, within one month of receipt of the operator's request to use the data in question, the subscriber has not expressed his opposition. Consent for the use of personal data can be withdrawn at any time. Operators must erase traffic data of a personal nature relating to subscribers which has been processed and stored to establish calls upon termination of the call. Operators may process such data only for the purpose of subscriber billing and interconnection payments, and only up to the end of the period during which the bill may lawfully be challenged or payment may be pursued. The data must then be erased.

The use of personal data via the Internet is also subject to the provisions on the protection of this type of data, in accordance with the new Decree-Law on the electronic signature, the Security Regulation, and the Regulation on the accreditation of suppliers of the certification service.

INTERNET

Decree-Law 7/2000 of 23 June 2000 introduced flat-rate Internet access via the fixed telephony network.

The Internet market grew substantially during 1999: revenues grew by 91% and the number of subscribers by 366% compared with 1998. The number of Internet users in Spain has reached 4 million. However, Internet still accounts for only a small proportion of the total revenues of the telecommunications market.

CMT believes that further development of the Internet market has been held back by a number of factors, such as the low penetration rate of PCs in the domestic market. Nonetheless, CMT believes that the introduction of new technologies and new means of access to Internet, such as wireless application protocol, digital terrestrial television or cable TV, will facilitate Internet use. Furthermore, legal initiatives, such as local loop unbundling or the implementation of ADSL, should also contribute to the development of Internet services in Spain.

Internet use may also increase as a result of the recent Government initiative to introduce a flat-rate accesstariff. However, market conditions, including the RIO, still have to be adapted to this new

scenario in order to permit all players to compete with the new flat-rate tariffs and commercial offers of the incumbent.

Operators want the RIO to include specific provisions for Internet calls.

Royal Decree-Law 14/1999 on electronic signatures establishes the basis for the existence of a powerful sector of certification service providers. It also fills the previous legal void in the matter and, therefore, provides for greater security in telematic communications. It will also allow the elimination of the main barrier to the development of electronic commerce through the Internet, providing traders and users the necessary guarantees to perform secure transactions through the net.

The volume of electronic commerce conducted in Spain through the Internet barely exceeded ESP 828 million (€4 976 380) in 1997, but increased by some 300% to ESP 3 500 million (€21 035 423) in 1998. The forecast for 2000 is about ESP 80bn (€480 809 683).

The Spanish authorities are also drafting a new Act on electronic commerce, which has been posted for public consultation until 20 October 2000.

FRANCE

OVERVIEW

Over the last year there has been continued growth in the French telecommunications market, with a 38.5% increase in the volume of mobile telephony and a 26% increase in its value in the first three months of 2000 alone, for example, and there are now 26.2m mobile telephone users in France. There have been significant increases in the international telephony market and the Internet access market, which increased by 154% in volume in 1999.

Alongside this growth, there have been further developments in the competitive environment in many sectors of the market, particularly in mobile and long-distance telephony, and over one hundred fixed operators are now licensed in France, with many of the recent market entrants focusing on the Internet access and broadband markets, as well as wireless local loop.

Last year's Fifth Report identified a series of concerns about the regulatory situation in France. These included the possible influence which the state shareholding in the incumbent may have on some regulatory decisions such as approval of the incumbent's tariffs; the high level of licence fees; the lack of preparations for carrier pre-selection; the lack of competition in the local access market; the level of contributions to the universal service funding scheme; the lack of evidence of tariff re-balancing; the procedures for controlling the incumbent's tariffs and the absence of a transparent cost-accounting system, and the lack of evidence of cost-orientation.

While competition in local access has not been able to develop so far, there have been significant steps taken recently which should allow local competition to begin, with the issuing of wireless local loop licences and the publication of a Decree to give effect to local loop unbundling. There has also been progress towards introducing adequate cost accounting, making universal service compensation payments more equitable, implementing carrier pre-selection and, very recently, improving the process of approval of the incumbent's RIO. Other concerns raised in the Fifth Implementation Report remain unresolved, however, particularly in the very markets that have a high potential for dynamic growth.

New entrants welcome recent initiatives to remove the barriers they experience on the French market, but insist that these must be speedily and properly implemented in order to ensure that certain shortcomings in the regulatory and administrative environment do not choke off further growth and competition in the telecommunications market. There have in this context been significant delays in the transposition in France of parts of the EU regulatory framework in telecommunications, which are causing greater difficulties as the market develops. More recently, the French administration has prepared a package of adaptation measures to overcome most of the difficulties in transposition, but this has yet to be adopted.

NATIONAL REGULATORY AUTHORITY AND APPEALS

From a regulatory point of view, there is common agreement that France provides a clear and stable framework within which operators can develop existing markets, anticipate new technologies and target new markets. The independent regulatory agency, the Autorité de Régulation des Télécommunications (ART), now has a proven track record in dealing competently with those regulatory issues for which it is responsible.

The Fifth Report described the situation whereby the same Ministry exercises responsibilities for the state shareholding in France Télécom and for the regulation of telecommunications. It identified certain questions as to how the required separation of shareholding and regulatory functions is achieved, and how the decision-making procedures within the Ministry are organised to ensure that regulatory decisions are not influenced by considerations of this shareholding. The French authorities have explained the legal and constitutional arrangements under which the powers delegated to the Secretary of State for Industry with regard to telecommunications are exercised independently of the Minister for Economy, Finance and Industry. Added to the explicit provisions of the 1996 Law on the regulation of telecommunications, the French authorities have demonstrated how real and effective separation of regulatory powers in telecommunications and management of shareholding is assured.

New entrants, nevertheless, maintain the view that shareholder considerations influence regulatory decisions in the Ministry, particularly as regards the approval of the incumbent's tariffs. They are particularly mistrustful of what they see as a lack of transparency in the mechanism for tariff approval, which makes it hard for new entrants to establish how proposed tariff structures are assessed and prevents them from giving their views. They state that they often learn of a proposed tariff only when the ART publishes its opinion to the Ministry. Furthermore, new entrants point out that there is little transparency in how the Secretary of State arrives at his final decision, especially when it comes to approving tariffs on which the ART has given an opinion which is positive but which is conditional on changes being made to the proposal. The French authorities point out that this raises a question of principle, as it is not appropriate to consult FT's competitors systematically on what are essentially commercial matters, but also that they have not ruled out such consultations where necessary. They also point out that the general rules on the transparency and justification of administrative decisions continue to apply.

France Télécom, on the other hand, complain that the tariff approval procedures are burdensome and slow, and that they allow other operators to copy them before new tariffs can be marketed. In response to this viewpoint, the French authorities state that in a certain number of cases delays to tariff approval have resulted from FT's failure to submit the necessary supporting evidence with the proposal.

New operators have also perceived certain weaknesses in the ART, for example in its reluctance to intervene more forcibly in the preparation by FT of the annual interconnection catalogue, or in the implementation of the portability of non-geographic numbers. Very recent developments regarding the approval of FT's 2001 RIO would appear to overcome some of these criticisms, and recent interventions by the ART in relation to new tariff offerings by FT show a much greater willingness to act quickly and decisively. More generally, new entrants are also concerned about the ART's tendency to engage on occasion in detailed consultation procedures on issues which sometimes require a more direct and speedy intervention, particularly where the incumbent has an interest in delaying access through its networks to new markets. The French authorities point out that the technical complexity of such new markets in itself makes it essential to undertake adequate consultation and preparatory work.

The effect of the failure of French legislation to empower the ART to intervene in interconnection negotiations and disputes on its own initiative, as required by EU legislation, is becoming increasingly clear, particularly as those seeking to refer a dispute to the ART must also prove conclusively that interconnection negotiations have broken down before the ART can intervene on the substance of the dispute.

LICENSING

The number of licensed operators has continued to grow in France, with 106 fixed network and service licences issued in September 2000. New entrants point out that network licence applications take nearly the full four-month period allowed automatically under French law, and that even straightforward applications require three months or more on average. For example, they point out that the process of applying for the extension of an existing regional licence takes as long as the original application, although it involves processing much of the same information as in the original licence. While the figures presented by the French authorities and the ART's 1999 Report confirm that the average period for processing network licence applications is still very long, the French authorities point out that an application cannot be dealt with until all the required information is obtained, while the level of information required is fairly modest. They also dismiss the criticism with regard to other applications, and point out that the time taken to treat simple applications such as a change of operating name has no effect on the capacity of the licence holder to operate effectively. Finally, they explain that licence applicants are assisted by face to face by meetings with the officials dealing with the application and with members of the authority.

The 2000 Finance Law provided for a 50% reduction in the annual fees charged to operators for management and control of their licence, which had been criticised in the Fifth Report. The need for such reductions is highlighted by the fact that in 1999 licence fees totalled FF 220m, nearly two and a half times that of the ART's total budget (FF 92m). The French authorities point out that it was hard to anticipate the growth in the telecommunications market in 1999, and thus the number of licences issued.

New entrants continue to complain about the high level of fees, particularly the cost of obtaining several regional licences despite the fact that applications are often almost identical for each licence. However, the French authorities have indicated that work is currently underway on the accounting procedures of the ART in order to ensure that administrative fees relate more closely to the administrative costs involved. They have also indicated that further reductions to administrative fees will be proposed in the draft 2001 Finance Law.

INTERCONNECTION

The 2000 reference interconnection offer (RIO) from France Télécom was only approved and published in mid-December 1999. This led to a repeat of the criticisms made by new entrants and noted in the Fifth Report concerning the 1999 RIO and, according to new entrants, made it hard for them to make clear business plans. Furthermore, the delays heightened the difficulties of new entrants who found that, despite months of negotiation, the catalogue did not correspond to their expectations either in relation to the tariffs offered or to the services covered.

However, there have been improvements in regard to the 2001 RIO. A preliminary offer was published in late July 2000, and new entrants claimed that this offer did not contain the new services they had requested and that the proposed tariffs were unacceptable. However, the ART showed greater

determination than previous years, and refused FT's second offer in late September. FT was obliged to make an improved and extended offer, and this was formally approved by the ART in late October.

The new offer contains new services such as indirect access and third party billing. The new RIO also removes the differentiation between interconnection charges for network operators and for service providers. New entrants have been critical of the lack of cost orientation in regard to interconnection tariffs and a general lack of transparency in the manner in which these tariffs are calculated. The 2000 RIO did however bring FT's interconnection charges firmly down to the EU benchmarks, and this appears to have been maintained by an average 7.6% decrease in the 2001 offer. The French authorities point out that the RIO tariffs are subject to approval by the ART but that other specific interconnection requests are subject to commercial negotiations between FT and other operators. FT admit that it has been difficult to attribute costs in some cases under the old accounting system, but point to the results of the new audit carried out which should allow for greater precision.

Another problem concerning interconnection, which new entrants contend raises particular difficulties for them and points to a serious competitive weakness in the French market, has been the failure of the authorities to apply Significant Market Power (SMP) principles to mobile operators with SMP in interconnection (and the mobile market), despite the fact that two operators have been designated. The failure to apply obligations not only of non-discrimination but also of transparency and, above all, of cost-orientation of interconnection tariffs is having a significant effect on other operators seeking call termination on French mobile networks. Given the increasing importance of this market, including for operators catering to the business market, new entrants state that they are being squeezed out or forced to operate at a loss. The French authorities argue that such tariffs are in the first instance a matter of commercial negotiation, and that as mobile operators are not obliged to produce a reference catalogue, the EU framework requires a posteriori controls on the respect by SMP mobile operators of their obligations. However, as a result of a recent dispute settlement by the ART, FT Mobile has been obliged to reduce its call termination rates by 20%, and this is likely to be applied to the other mobile operator with SMP in the interconnection market.

A related problem, which was already referred to in the Fifth Report, is the apparent price discrimination between termination of national calls and termination of international calls, which has been felt more acutely by new entrants with the growth in the mobile termination market. However, another recent decision by the ART in the context of dispute resolution procedures have raised the interconnection charge paid by FT to mobile operators for the termination of international calls on their networks.

LOCAL ACCESS

The Fifth Report indicated the tentative steps that were being taken towards greater competition in local access, but since then there have been significant efforts made that should alter the local access market radically over the next year. In September 2000, at the end of a successful tendering procedure by the ART, France awarded a number of Wireless Local Loop licences on the basis of comparative selection. In all, 2 national licences and 2 regional licences in each of 22 regions were to be awarded, paving the way for the competitive development of an alternative to FT's fixed network from 2001 onwards. There were minor problems when two winners declined to take up their licences, leaving six regional licences unallocated, but the French authorities have reacted quickly by launching a further call for applications.

On 13 September 2000 the French government published a Decree giving effect to their commitment to introducing unbundling by 1 January 2001. Local loop unbundling will be made available for full and shared access. It is supported by a considerable amount of preparatory technical work between

operators that has been co-ordinated by the ART, and testing started in July 2000. Difficulties are being experienced however, for example in the amount of space available for collocation in the exchanges being used for testing, and new entrants anticipate particular problems when it comes to determining the charges to be paid to FT for full or shared access to its local network.

The approach of new entrants, FT and the ART to putting unbundling into practice is likely to be influenced by the problems experienced in developing competition in the bit-stream access market, following the launch of FT's ADSL service that was referred to in the Fifth Report. Following this launch, FT was faced with a number of requests for access on equal terms, and in light of the continued failure of the parties to reach agreement FT was eventually forced by the French competition authority (*Conseil de la Concurrence*) to make an interconnection offer to other operators who want to have bit-stream access under the same conditions that FT offers to itself. The tariffs in this new offer were firmly rejected by FT's competitors, who insist that they are discriminatory and unrelated to FT's actual costs. However, negotiations have continued, and it is significant that no operators have referred the matter to the ART or the Conseil de la Concurrence.

The ART supported the case (taken by a new entrant) before the Conseil de la Concurrence, and while the latter obliged FT to produce an offer to other operators, it did not agree with the proposal for interim measures stopping FT's own roll-out completely. So while FT's subsequent offer was improved, the result has nevertheless been a continued blockage of competition on the ADSL market which, new entrants point out, FT has been able to exploit and develop for a year.

New entrants are concerned that this ongoing problem represents a failure to develop competition in a crucially important and potentially lucrative new market. They argue that it also illustrates the shortcomings in the administrative powers available in France to ensure the developments of such markets, allowing the incumbent operator to gain crucial months in which to take a strong, or possibly even dominant, position on the new market of broadband telecommunications services. France Télécom point out that they did not have dominance in what is a new market, and that they were in competition with cable operators who had a higher number of high-speed connections.

UNIVERSAL SERVICE/CONSUMERS/USERS

Following last year's increase in the subscriber tariff, referred to in the Fifth Report, the supplementary interconnection charge was removed from the universal service financing scheme, which was consolidated around the universal service fund. However, while the geographical averaging issue was apparently resolved by the claim that tariff rebalancing had been achieved, the problem referred to in the Fifth Report concerning charges applied to operators for 1999 and earlier years remains, and new entrants continue to question the validity of the cost components used to calculate the net cost of provision of the universal service in France. The failure to take into account the net benefits of those universal services that are profit making is also questioned, as well as the failure to subtract from the end-result the evaluation of the market advantages related to the provision of universal service, although the ART has released such evaluations since 1999. The French authorities have made methodological improvements in the manner in which costs are calculated and attributed, but it is of some concern that these have not been used to correct the calculations for earlier years.

As regards the level of financing itself, and despite the reductions in 1999 and the reductions in the provisional estimate for 2000, new entrants are still critical of the cost of the contributions that they must make to the benefit of FT. They see this as particularly unfair when FT is perceived to be using its existing market power to prevent competition in new markets and on alternative infrastructures which could themselves drive down the cost of providing universal services.

Neither operators nor consumer groups report problems in the provision of the universal service as defined in France, except for the continuing failure to provide a universal directory. This failure is increasingly worrying to operators as they win more clients from FT, but the original delay arose from their reluctance to hand over client details to a FT subsidiary to compile the universal directory. The French authorities have recently indicated that new steps are being taken, requiring further legislation, to ensure that the subscriber data is made available between operators.

The ART has completed an extended study of quality in mobile service provision, and noted some problems with saturation and call failure in areas of high population density in peak time. However there have been continued efforts by the GSM operators to increase the density of their networks to overcome such problems.

MOBILE SERVICES INCLUDING THIRD GENERATION AND ROAMING

The French mobile market attained a penetration rate of 43.6% of the population in September 2000, with the three licensed GSM operators holding over 26m subscribers between them. A significant proportion of new subscriptions (for example 65% in the first and third quarters of 2000) come in the form of pre-paid cards, which now represent over 41% of the mobile market. The importance of the pre-paid market segment to the GSM operators, added to the lack of excess capacity in some metropolitan areas probably explains why there has been no development of mobile virtual network operators in France, although the market for resellers of capacity through pre-paid cards is developing apace with the market.

The expansion of the GSM market allowed for a painless end to the analogue mobile market, which was completed with the termination of FT's analogue licence and the restitution of the frequencies involved. Following considerable consolidation, there is one operator controlling an extended network of analogue professional radio networks (3RP) in France. This same operator has the sole licence to operate a national digital professional radio network (based on the TETRA standard). The licence of this operator has now been converted so that it can offer digital PMR services to the public, and not just in closed user groups, which may provide some competition to GSM operators in the large enterprise market.

In August 2000, the French authorities launched the tendering procedure for the award of four 3G licences, which is to terminate in May 2001. The government had announced in June that a comparative selection procedure (beauty contest) would be used. The selection criteria published in August put a strong emphasis on "aménagement du territoire" and thus population coverage and the roll-out of services.

The four licences will last for fifteen years and will allocate 2x15MHz and 5 MHz unpaired to each operator. The French authorities have explained that limitations on frequency were one of the key factors leading to the decision to restrict the number of licences to four, and while the frequency has been designated, it will only become free progressively, with 2x10MHz available to each operator by 2002. The licence conditions allow for new entrants to the 3G market to roam on one 2G network for 5 years, providing they meet certain obligations relating to effectively roll-out their own network.

Each licence will cost €4.95bn (FF32.5bn). Some questions have been raised by potential operators about the proportionality of this charge, and the effect on different sized operators and new entrants, but also on the need for the charge to be objectively justified given that it was set as part of a comparative selection procedure and not established in the course of an auction.

TARIFFS

As referred to above in relation to the status of the national regulatory authorities, the issue of the transparency of procedures used in verifying and approving the tariffs of the incumbent is a major preoccupation for all new entrants, just as it was at the time of the Fifth Report. The transparency of the tariffs themselves is also brought into question, particularly in regard to the calculation of interconnection tariffs within FT. The various criticisms expressed with regard to tariffs are closely related to the delays in applying a verifiable system of cost accounting for the regulated services of the incumbent operator (voice telephony, interconnection and leased lines).

The problems associated with the transparency of tariff components are increasing significantly as the number of new markets grows, which rely to some extent on existing FT infrastructure (ADSL, indirect Internet access etc.).

One of the ongoing issues to be highlighted by the recent developments concerning cost accounting (see below) is the insistence by FT that even the new domestic subscription (FF82.30/€12.55) is below the costs associated, and that a significant increase is required to achieve re-balancing of access costs in France. Following a negative opinion from the ART in March 2000, the government accepted the small proposed increase in the line rental but insisted on a 5% reduction in local call charges. The slight increase in line rental tariffs seems unlikely to allay the fears expressed by new entrants that there are serious problems with regard to local tariffs. It is significant that, subject to a more detailed examination, the ART noted that the subscription fee may not cover all the costs associated by France Télécom with the subscriber line.

As regards voice telephony end-user tariffs, there have been further reductions in all market segments in line with competition. However, the ART recently insisted on a number of changes to FT's latest proposal for long-distance and some business tariffs because of the risks of a price squeeze on other operators. In a significant recent development, the ART gave a partially negative opinion in relation to proposals by FT for an "all-in" tariff for business or residential users covering the subscription, a set number of call units as well as certain complementary services. The offer was to cover either local calls ("Ligne Locale") or local and long-distance/international calls ("Ligne France"). The ART found that the Ligne France version would be anti-competitive, and also set a condition that the Ligne Locale version could not have a minimum subscription period. When FT nevertheless announced that it would launch the Ligne France offer, the ART immediately lodged a complaint to the Competition Authority and requested interlocutory measures against France Télécom.

COST ACCOUNTING

Up to the present, while FT's accounts were audited in 1996 and 1998, the cost-accounting system in place for France Télécom has not allowed the verification of the cost-orientation of its tariffs. However, the situation should change significantly in the near future, as external auditors have just completed a detailed regulatory audit of FT's 1998 accounts and the accounting procedures used to prepare them, including the system of cost allocation. While the auditors are reported to be critical of certain aspects of FT's accounting practices and the allocation of certain costs – especially for interconnection – this is still a major step forward and should allow greater certainty in the calculation and approval of tariffs where tariff obligations apply.

The recent audit represents the first verification of the new accounting techniques introduced in FT in 1997 and 1998, as well as being an audit of the 1998 accounts themselves. FT point out that they now have one of the strictest and most demanding audit regimes in the EU. While it is the ART's

intention in the long-term to move to a regulatory accounting system for FT based on long run average incremental costs (LRAIC), the latest audit will allow a more confident attribution of costs on the basis of fully distributed historical cost, but with significant forward-looking elements which should assist in the determination of interconnection and other regulated tariffs.

LEASED LINES

New entrants continue to complain about the cost of leased lines from France Télécom, particularly for short-distance lines, and they are generally sceptical about the cost orientation of FT's leased line offerings. The most serious problem is the high rental charge for short distance (2km) 64 Kbps lines. There are also concerns about charges for short distance 2Mbps lines although these are still close to the EU average, while charges for high and very high speed leased lines at long distance and national level are among the highest in the EU. The data available to the Commission also shows that other 64 Kbps and 2 Mbps leased line charges in France are very close to the EU average, and are significantly below the average for international (far EU and US) lines. There appear to be specific problems with the price structure for leased lines for wideband local access, where new entrants claim that FT attempts to limit the role of other network operators to one of reseller. The ART have already responded to the situation with regard to charges for short distance lines by requesting FT to improve its costing system and refusing to approve certain proposed tariffs.

There appears to be little change with regard to the time required by FT to provide a leased line, which added to the high cost of 64Kbps local connections still plays a significant factor in competition between FT and other backbone operators who rely on FT for the final local connection to small businesses. New entrants suggest that similar considerations have influenced FT's approach to the development of the ADSL market, which would provide an alternative means of broadband access for small companies.

NUMBERING

New entrants regard France's failure to implement correctly either carrier pre-selection or number portability, which were supposed to be fully in place by 1 January 2000 at the latest, as a major barrier to those who wish to compete effectively with France Télécom by offering a full range of services. Pre-selection for long-distance and international calls is working smoothly and effectively and is having the desired effect with regard to stimulating competition, with 3.4 million users availing of selection and pre-selection.

However, there is no means to give effect to carrier pre-selection for fixed to mobile calls, or for local calls either. Implementation of preselection for fixed to mobile calls was linked by the French authorities to the system whereby mobile operators unilaterally set the tariff for fixed to mobile calls, and thus determined the interconnection fee to be retained by the fixed operator. In August/September the Secretary of State officially modified the authorisations of the mobile operators to bring this anomaly to an end, and 1 November has been designated as the new target date for the introduction of selection and preselection of fixed to mobile calls to coincide with the entry into force of the modified licence conditions.

As regards local calls, the French authorities apparently do not intend to introduce preselection in the short term, arguing that there is no demand from new operators. Furthermore, both the French authorities and FT point out that the current configuration of FT's switches, which was originally introduced to facilitate new entrants in the long distance market, effectively delimits the area in which it is uneconomical for those new operators to carry traffic because of their reliance on FT's

local network. New entrants confirm that in many cases they will not seek to compete with FT on the local domestic market, at least in the short term, but that nevertheless they wish to have the option of offering pre-selection in order to be able to offer a full suite of services to their customers.

The Numbering Directive also mandates the portability between carriers of non-geographic numbers on the fixed network (such as 0800 and freephone numbers, and other tools which have a particular importance for business-to-customer applications). France has failed to implement this requirement, as it appears that the technical solution envisaged by the ART has proven to be unworkable. While the ART has just launched a new consultation on all aspects of portability, there appears to be a greater emphasis now on pushing new entrants to determine the mechanisms to be used to give effect to the legal requirement for non-geographic number portability. New entrants fear that it could be well into 2001 before the portability of non-geographic numbers is effectively available.

RIGHTS OF WAY

New entrants have pointed to a small number of local rights of way disputes in relation to the provision of new cable, but the system appears to be operating to the satisfaction of operators and municipalities alike. However, new entrants have complained of some delays in the provision of their own alternative to leased lines from FT, particularly local access lines where operators are already having to face high costs, and they are sometimes prevented from providing their own links from customers' premises to the local switch to which their own networks are connected on environmental or public planning grounds.

In June 1999 the French authorities introduced legislation which restricted the ability of municipalities ("collectivités locales") to invest in telecommunications infrastructure at commercial rates by requesting them to depreciate the relevant investment in 8 years instead of normal depreciation periods of 15 or 20 years. While new entrants are quite supportive of investment by municipalities, because it allows them to buy dark fibre instead of having to build their own networks, the question raised in the Fifth Report remains as to whether the involvement of municipalities in the provision of telecommunications infrastructure can have an impact on the exercise of powers and obligations with regard to granting rights of way, especially where a third operator may seek to construct its own network in competition with that made available by the municipality.

DATA PROTECTION

Important elements of the Data Protection Directive have still not been transposed in France, and it appears that many operators are not fully aware of their obligations under existing French law and have not been made sufficiently aware of the obligations that will arise when the Directive is finally implemented.

So although the draft implementing legislation has been ready for over a year and a half, there do not appear to have been sufficient efforts to co-ordinate or prepare its introduction with operators. This may create the risk of further delays before technical and administrative mechanisms can be put in place by the operators to give effect, for example, to the provisions on the protection of traffic data or on automated calls. This is a serious problem in its own right, as the protection of users rights is an increasingly important factor in ensuring the acceptance of new technologies and the development of the information society. Furthermore, it is essential that a speedy and co-ordinated implementation of the Directive take place, as the cost to operators of re-engineering administrative and technical systems will grow as markets mature and diversify.

INTERNET

Together with mobile communications, Internet access has been the highest growing telecommunications market in France over the last year, with access calls increasing in volume by 154% in 1999 and the volume of the first quarter of 200 equalling 42% of total calls last year, and over 4.5 million subscribers by July 2000. While FT holds over 90% of the access market its ISP subsidiary holds less than 40% of the service market, and there is a wide range of service options now being provided and growing competition in the sector. However, these developments have not been without difficulties, and there have been delays in freeing up the Internet access market and particularly the use of innovative tariff structures. Partly because of the failure to open-up the ADSL market, most of this Internet traffic is still conveyed by conventional narrow-band networks, but the development of broadband access is expected to accelerate over the next year.

New entrants have made a number of complaints about the manner in which FT's access tariffs are introduced on the market and particularly the manner in which FT is perceived as restricting access to other network providers. The ART has been called on to intervene in a number of disputes, and has recently confirmed the obligation on FT to provide indirect access to other network operators. The problems over indirect interconnection had been compounded by a related dispute over the obligations and conditions for shared revenue services, particularly third party billing by France Télécom. Both of these services have now been included in FT's RIO for 2001. The market has already seen the development of a number of flat-rate tariffs, and the ART is now promising to work for the introduction of capacity-based interconnection tariffs for Internet access.

The above mentioned dispute on ADSL access has been the major barrier to competition in the high-speed Internet access market, particularly for domestic and small-business users, and new entrants are unanimous in their criticism of the tactics used by FT to give themselves a significant period in which to develop their market offering and to protect their leased line business. New entrants are also critical of the manner in which the authorities have failed to act decisively in forcing FT to open up this market.

IRELAND

OVERVIEW

Since the Fifth Report, new licences have been issued, increasing the number of licence holders to 73. Competition in the fixed-line market has continued to increase. According to the Irish regulator (Office of the Director of Telecommunications Regulation - ODTR), the new entrants' share of the fixed-line market has risen to in excess of 15%. Competition is expected to intensify further, as cable companies and operators of microwave multipoint distribution systems (MMDS) are upgrading their networks in order to enter the voice telephony market and provide a range of services, including Internet access. The introduction of carrier pre-selection and number portability and the licensing of wireless local loop systems is expected to further boost the markets. Over 49% of the population of Ireland now has a mobile phone.The provision of Internet services continues to grow: Internet penetration has increased to 96% of the business sector, and 33% of the adult population has Internet access at home.

Plans were recently announced for the establishment of a new commission to exercise all regulatory powers and functions in the telecommunications sector in Ireland, taking over from ODTR. New provisions on rights of appeal have been adopted, and ODTR decisions can now be implemented notwithstanding the initiation of legal proceedings against them, unless the court specifically considers that a stay of implementation is justified. ODTR has now issued the third mobile telephony licence, and prices are expected to fall further as soon as it becomes operational, possibly by November 2000. Four broadband and two narrowband licences have been issued, and ODTR's decision to grant a broadband licence to the incumbent was finally confirmed. A consultation was held on issuing another two broadband licences and one narrowband licence, and decisions are to be made shortly. Ireland did not make use of its right under its derogation to defer the introduction of carrier pre-selection and it was introduced on 1 January 2000. Number portability of non-geographic numbers was introduced on 1 January 2000 and of geographic numbers on 1 July 2000.

The situation regarding rights of way has not changed during the past year and, contrary to expectations, the new Telecommunications Infrastructure Bill has not yet been passed. There has been no change as regards the transposition of the Telecommunications Data Protection Directive: the draft statutory instrument communicated to the Commission last year has not yet been finalised.

NATIONAL REGULATORY AUTHORITY AND APPEALS

Since 1997, the Office of the Director of Telecommunications Regulation (ODTR) has exercised all regulatory powers in the telecommunications sector in Ireland. The Government is now planning to establish a new commission to oversee further deregulation, called the Commission for Communications Regulation. On the day of its establishment, ODTR will be dissolved and all of its powers, functions and staff will be transferred to the new Commission, which is expected to comprise a maximum of three members appointed by the Minister for Public Enterprise. Its powers will be broader than those of ODTR, and further provisions will be made in relation to governance and accountability of the regulator. Like ODTR, the new Commission will be accountable to the Oireachtas.

The proposed changes are expected to address problems related to ODTR's lack of powers and, in particular, lack of enforcement powers. Other licensed operators (OLOs) are concerned that ODTR appears to attach low priority to monitoring Eircom's compliance with the terms of its licence and with ODTR decisions. ODTR claims that it attaches high priority to ensuring that all operators comply with their licence obligations, takes complaints seriously, and acts quickly and effectively. In total, it has dealt with 48 formal and informal complaints to date.

The incumbent expressed concern about the accountability of ODTR. ODTR stresses that it reports to the Minister for Public Enterprise and to Parliament every year, that its accounts are audited properly, and that its decisions are subject to judicial review.

New dispute resolution mechanisms were introduced in 1999 and are now well established: the ODTR aims to resolve all disputes within 12 weeks. So far, ODTR has dealt successfully with the majority of disputes within the specified time limit. However, OLOs have expressed concern that the time-scales of the dispute resolution procedure are not always adhered to, and that there is no follow-up of ODTR determinations.. ODTR states that these concerns are unfounded. In certain cases ODTR has found that Eircom was acting in breach of its licence, and has directed Eircom to remedy the breach. ODTR can also impose other remedies to ensure that a licensee complies with its obligations. Concern has also been expressed that the maximum fine which can be imposed for a breach is relatively low (1 500 Irish pounds)

Last March, regulations were made giving the court handling an appeal discretion to decide whether an ODTR decision should be suspended pending the outcome of the appeal. Under the laws previously in force, the decision concerned was automatically suspended until the outcome of the appeal. The court now has discretion to allow the Director to proceed with the granting of a licence pending the appeal, subject to such conditions as the court may impose. The previous arrangements were favourable to parties not wishing to comply with an ODTR decision on interconnection issues, as by lodging an appeal they automatically obtained the suspension of the decision, even where their grounds for appeal were spurious.

OLOs are concerned that ODTR's organisation chart is not published. However, details of ODTR's organisational structure can be found on its web site and contact names are included in consultation papers. Further organisational details will be published during 2000 in the Freedom of Information Manual. According to ODTR, there has been significant turnover of staff in the past year as temporary assignments of civil servants to ODTR came to an end and they were replaced by new staff. Greater continuity is expected in the coming year.

LICENSING

There are two main types of telecommunications licence: general and basic. A general licence is granted within six weeks and permits the licensee to provide telecommunications networks and services, including voice telephony, to the general public. A basic licence is granted within four weeks and does not cover voice telephony and services involving numbers. By August 2000, 45 general and 28 basic licences had been granted, of which 25 and 19 respectively are currently operational. There are currently 11 operators offering services in the residential market, and 8 operators are active in all markets (local/national/international). Three licences have been issued to provide GSM 900 and 1800 MHz services.

In summer 2000, two narrowband and four broadband national wireless local loop (WLL) licences were granted, and these are expected to be operational in the next few months. The licences were granted through a comparative selection procedure (criteria included: contribution to competition,

prices, services, geographic coverage and performance guarantees) One more narrowband and two more broadband WLL licences are expected to be issued soon.

Licence fees were set in the latter part of 1998 at a level sufficient to cover the estimated costs of examining licence applications, and range from EUR 12 500 for a general licence to EUR 2 500 for a basic licence. The costs to be recovered comprise direct costs, overheads, legal services and consultants, and were estimated on the basis of the expected mix of licence applications. The direct costs were calculated by multiplying the estimated time taken by the various grades of staff concerned to review an application by the annual cost of employing such staff. The overheads were estimated as a percentage of the direct costs. Consultant charges were also based on an estimate of the time needed to review a licence application and estimated consultancy fees.

INTERCONNECTION

Three companies have so far been designated as having significant market power (SMP): Eircom in the markets for public fixed telephone services and networks, leased lines, and in the national market for interconnection; Eircell and Esat Digifone in the public mobile telephony market; and Eircell in the national market for interconnection. However, OLOs are concerned about the delay of almost a year in requiring Eircell to provide cost-oriented access following its designation as an SMP operator. ODTR notes that at the end of last year Eircell's interconnection rates were low by international standards. Under the Irish Interconnection Regulations, an SMP operator is required to follow the principles of transparency and cost orientation. ODTR is currently conducting an investigation into mobile interconnection charges.

In February 2000, ODTR finalised the interconnection rates for 1998 and 1999 and conducted a consultation on the scope of the new RIO following the resolution of Court proceedings initiated by Eircom against the ODTR decisions on the RIO published in September 1999. Following several amendments directed by ODTR, the revised RIO was approved by ODTR and re-published in June 2000. OLOs claim that Eircom failed to seek the views of OLOs before submitting its draft RIO to ODTR. ODTR notes that Eircom's obligation prior to submission of the revised RIO was restricted to service level agreements for interconnection circuits and did not extend to all interconnection services which had been subject to an earlier consultation.

In June 2000, Eircom announced reductions of almost 23% on the interconnection rates paid by OLOs at the end of 1999. According to ODTR, this reduction is the most significant fall in rates since the liberalisation of the market in December 1998, and places Ireland well within the EU's best practice benchmarks. In July Eircom announced average price reductions of 35% for customer-sited interconnection circuits.

ODTR's acceptance of the appropriateness of the introduction of a payphone access charge (PAC) for calls from Eircom payphones to 1800 free-phone numbers and its retrospective application was questioned by OLOs. ODTR considers that the legal basis for PAC is the same as for any other interconnection charge, and that it has given due consideration to operators' concerns about its legitimacy and its retrospective application. One operator initiated proceedings against the ODTR in relation to its Direction.

OLOs are concerned that Eircom is engaging in off-book pricing of its frame relay product. The off-book pricing issue is currently being investigated. ODTR indicated that it is reviewing any obligations Eircom may have in respect of frame relay pricing, and that it has the power to force Eircom to adhere to prices where it has a clear obligation to publish them.

LOCAL ACCESS

ODTR issued a decision notice on local loop unbundling (LLU) setting out the framework to facilitate the introduction of LLU in Ireland. Commercial trials for bitstream access will start in January 2001. Bitstream access is expected to be available to the market by April 2001. The proposed pricing methodology for unbundled local loops will be long-run incremental cost based on current cost accounting.

New entrants favour full LLU. Although they recognise that ODTR cannot mandate full unbundling until the new legislation comes into force, there is a perception among them that ODTR is not actively promoting enough preparatory work on it at present. This is of particular concern to them, as in their view there is no clear commitment to LLU in the ODTR consultation. However, ODTR points out that its decision on LLU is very clear as to Eircom's obligations; it is leading twice weekly meetings on developing LLU systems and is pressing Eircom for full copper arrangements for January 2001. Eircom has provided a product description for full copper which is being reviewed.

In 1999 tenders were invited for four broadband and three narrowband wireless local loop licences valid for ten years. Four broadband and two narrowband licences were granted to operators. In addition, two licences, one broadband and one narrowband, were awarded to Eircom. Following a legal challenge against ODTR, its decision to grant a broadband licence to Eircom was confirmed by an evaluation group set up in response to these proceedings. Following a public consultation recently concluded, a decision is expected shortly on two more broadband licences and one narrowband licence.

UNIVERSAL SERVICE/CONSUMERS/USERS

Eircom continues to be the universal service provider in Ireland. The universal service obligation (USO) includes the provision of access to the fixed public telephone network and services, directory services and public payphones, and covers the entire country. If ODTR finds that the USO constitutes an unfair burden on the incumbent, it may either establish a USO fund or allow the incumbent to apply a supplemental interconnection charge. The incumbent made a submission to ODTR estimating the costs of the USO in December 1998, and ODTR is currently reviewing the matter. According to new entrants, recent statements by ODTR seem to indicate that it has already decided that the USO is a burden on the incumbent requiring the setting-up of a USO fund. ODTR refutes this allegation, stating that it has not made any decision or statement indicating that USO is a burden on the incumbent. ODTR is currently making efforts to conclude its examination of this issue, and is planning to conduct a public consultation before reaching a determination.

MOBILE SERVICES INCLUDING THIRD GENERATION AND ROAMING

At present, there are two mobile operators in Ireland providing both GSM 900 and DCS 1800 services. Following protracted litigation, arrangements for the issue of the third mobile licence have been concluded, and the third operator is expected to be operational by November 2000.

A comparative selection procedure for the award of third-generation (3G) licences is expected to take place between December 2000 and February 2001, with licences to be announced in June 2001. Four licences will be granted, each comprising 2×15 MHz of paired spectrum plus 5 MHz of unpaired spectrum. One of the four licences including spectrum in the GSM 900 and DCS 1800 bands will be reserved for a new market entrant. Applicants will be required to give certain minimum commitments and performance guarantees to ensure that the licences are awarded to the strongest

players, willing to provide competitive services. The possibility of making access to the comparative selection process conditional upon a commitment to permit national roaming is under consideration.

Following a public consultation concerning access to mobile networks, ODTR concluded that it supports negotiations between service providers and the mobile networks. Views were invited on types of access and services to be provided, pricing, who should provide access, and opportunities for increased competition on tariffs and value-added services. ODTR is also engaged in a review of mobile interconnection charges, to be concluded in 2001.

ODTR is currently reviewing spectrum management, and is about to review the procedures for licensing spectrum usage. Both reviews are highly welcomed by the industry, and long overdue according to them. OLOs are looking to the outcome of this review, which should result in more efficient processes being put in place.

TARIFFS

ODTR can impose price caps on one or more baskets of services if there is no competition for the provision of a service or if a service provider has a dominant position for the provision of that service. The tariff order currently in force came into operation on 1 January 2000. This order placed a price cap on certain Eircom tariffs, requiring them to be reduced each year for three years starting from 2000. The annual reduction should be at least equal to the annual percentage change in the consumer price index minus 8%. The price cap applies to charges for telephone and ISDN line rental; connection, reconnection and removal; local and national calls; operator assistance, directory enquiry and payphone calls. International calls, leased lines, value-added services and the sale or rental of terminal equipment are not covered. Affordability is also ensured, particularly for users in rural and high-cost areas and members of vulnerable groups.

Eircom is concerned that the price cap regime for 2000-2003 allows very little scope for tariff rebalancing. ODTR suggests that Eircom can adjust its tariffs within the basket within the limit of the change in the consumer price index plus 2% for services other than directory enquiry, for which there is no specific limit. The sub cap on rentals allows for progressive rebalancing. Eircom increased rentals by 6.64% in 2000, and further increases might take place. Its monthly PSTN line rental is already relatively high by EU standards. Eircom also claims that directory enquiry remains in the main basket despite the entry of a competitor in the directory enquiry market, an allegation refuted by ODTR, which claims that the competitor is not yet established in the relevant market.

According to Eircom, it is unclear whether its tariff proposals should be based on cost models or benchmarks. Eircom thinks that ODTR uses a different approach depending on whether the tariff is to be raised or lowered. Eircom is also concerned that it may ultimately be obliged to charge below-cost tariffs or tariffs not based on pure per-minute charging as a result of ODTR's selective use of Community benchmarking. ODTR states that it considers a variety of sources of information in assessing cost orientation of interconnection and leased line charges, including the results of cost modelling and benchmarking.

COST ACCOUNTING

Eircom's existing costing system is based on historic cost information and covers all of its services/products including leased lines, voice telephony and interconnection. The system was modified in 1998 to produce cost and revenue information. At present Eircom is in the process of

developing a top-down costing model that will incorporate current cost accounting and long-run incremental costing (LRIC). The model is due for completion this year. ODTR is constructing a bottom-up LRIC model of the core network and will compare it with Eircom's top-down model.

OLOs are concerned that the LRIC model for interconnection rates, which was expected before Christmas 1999, has yet to be presented to the industry. ODTR accepts that the model has taken longer to develop than originally anticipated. However, the initial results from the model were used along with analysis of Eircom's historic costs in reviewing the interim rates for 2000/01.

OLOs are concerned that ODTR has not struck the right balance between transparency and commercial confidentiality. They claim that they have no information on the cost components of the model, which ODTR seems to view as commercially confidential. ODTR claims that it took all possible steps to address the issue of openness and transparency by inviting the industry to express its views during a 'LRIC Model Open Week'. The ODTR has offered to facilitate a further LRIC Model access session. Once the industry has provided final comments on the model, ODTR will adjust the model where appropriate.

LEASED LINES

In March 2000, ODTR conducted an intensive review of pricing of leased lines. Following this review, Eircom announced leased line price reductions averaging 16-18%. Some reductions will be much greater. In the case of local ends for 2 Mb/s lines, the reduction is 36%.

On 1 November 1999 ODTR introduced a framework for service level agreements (SLAs) for leased lines. The SLAs cover delivery periods, quality levels and maintenance terms for services including analogue and digital leased lines, ISDN lines and basic exchange lines. Penalties can be imposed on Eircom if it fails to observe the standard delivery periods set out in the SLAs.

The Fifth Report identified concerns about the time required for the delivery of leased lines. Since then, no substantial progress has been made, and Ireland continues to rank among the Member States with the longest delivery period. According to new entrants, Eircom has failed to deliver interconnection and leased line circuits. ODTR has been involved for more than a year in directly monitoring the delivery of interconnection circuits and leased lines. However, OLOs are still experiencing problems with the delivery of both types of circuit, and experience has shown that as soon as ODTR ceases to monitor Eircom's delivery of such circuits problems increase. Average lead times for the delivery of leased line (and interconnection) circuits to new entrants is 5-6 months. Eircom frequently operates outside the time-scales set down in its RIO and in ODTR-approved SLAs. As a result of the continued poor delivery of leased lines by Eircom, ODTR considered that the penalties provided for in the SLAs were no longer adequate to ensure effective delivery of services. In response to this failure, ODTR directed Eircom to amend its SLAs for leased lines with respect to penalty payments with effect from 15 September 2000. In particular, ODTR directed Eircom to amend its existing mechanism for penalty calculation so that penalty payments will no longer be capped after delivery has reached 1.5 times the target delivery period. Eircom has appealed against this ODTR direction.

Eircom is concerned that onerous publication rules with regard to leased lines act as a disincentive for it to introduce new tariffs. Eircom also claims that ODTR seeks to approve tariffs even where the market is competitive. ODTR invited Eircom to submit arguments showing that there is effective competition in the provision of high-speed leased lines. If ODTR was convinced that there was effective competition, it would hold a public consultation to remove publication requirements. However, Eircom failed to provide such evidence.

NUMBERING

Carrier Pre-Selection (CPS) was introduced ahead of time, on 1 January 2000. Operators with significant market power in the fixed access market were required to provide CPS from 1 January 2000. At present, the only such operator is Eircom. Other fixed network operators and mobile operators are not required to provide CPS, but they can supply it on a reciprocal basis. CPS is currently available for international, national and all calls. Calls for which the customer does not pre-select an operator continue to be routed by Eircom.

The number of CPS customers is currently estimated to be in excess of 60 000. Current CPS charges are interim and are based on such information as was available in the very brief period available for fixing rates at end 1999. OLOs expressed concern that the costs of CPS are not transparent and that no adequate explanation of the cost elements used was given to them. ODTR considers that, despite the difficulties, it has struck the right balance between transparency and commercial confidentiality. ODTR proposed that Eircom should publish its cost elements at the end of each year in accordance with the accounting separation rules.

OLOs were concerned that Eircom's tactics are not always in line with the CPS Code of Practice, a document agreed by the industry and therefore experienced with CPS practical and operational problems. In one case, customers who had registered for the CPS services of an OLO did not receive this service through their chosen OLO. ODTR recently made a determination, finding that there was not sufficient evidence that Eircom was in breach of its licence conditions. ODTR considers that OLOs had encountered problems at the early stages of the introduction of an automated order handling and provisioning system, but that these problems have since been rectified. At a recent meeting between ODTR and OLOs, ODTR received no reports of problems, and the feedback was positive. The dispute referred to above regarding the CPS code of practice now appears to have been settled.

Number portability for non-geographic numbers was introduced on 1 January 2000, with priority being given to free-phone, premium-rate, shared-cost, universal access and personal numbering services. Since 1 July 2000, Eircom has provided number portability of geographic numbers on a reciprocal basis to any operator which requests it. All operators will be required to offer customer-initiated number portability by 30 November 2000. Mobile operators provide partial number portability, permitting users that switch to another operator to retain the subscriber part of their number and change only the access code. ODTR is currently conducting a study concerning full mobile number portability which is expected to be published in the near future.

The telephony numbering scheme is administered by ODTR as a public resource on behalf of the State, and is made up of all numbers which may be dialled on a public network and are used to establish telephone calls. The ODTR is currently in the process of reviewing the numbering scheme and is likely to conduct a public consultation later this year.

RIGHTS OF WAY

Since the abolition of Eircom's exclusive rights on 1 December 1998, all operators have been on an equal footing. Rights of way through private land are a matter for commercial negotiation between operators and landowners. Currently, there is no provision for compulsory acquisition of rights of way. Road authorities have the power to set requirements for operators wishing to access public highways in order to install infrastructure.

OLOs are concerned that there is a lack of clear legislation and that local authorities adopt diverse approaches to new entrants interested in establishing infrastructure in their area. OLOs also claim that they are often subject to arbitrary requirements to reinstate to a higher standard than before the works, and may be required to provide the local authorities with a non-refundable bond. Draft legislation published in 1999 (Telecommunications (Infrastructure) Bill, 1999) has not been enacted so far, and according to OLOs there does not seem to be the political will at present to redraft appropriate legislation on this important issue. New entrants are therefore concerned that building alternative infrastructure is extremely costly and involves a lengthy procedure.

The Interconnection Regulations apply as regards facility sharing, providing that operators have a right to negotiate such agreements. Under the Regulations, ODTR is empowered to intervene if disputes arise. Road authorities may require facility sharing in bottleneck areas.

DATA PROTECTION

The Directive of the European Parliament and of the Council concerning the processing of personal data and the protection of privacy in the telecommunications sector has not yet been transposed. The draft statutory instrument is being finalised by the Office of the Parliamentary Draftsman prior to its signature into law by the Minister for Public Enterprise. Under the existing regulatory framework, subscribers are entitled to request to receive non-itemised bills. Certain requirements set by the Directive relating to calling line identification (CLI) are currently provided by operators as well.

INTERNET

The provision of Internet services in Ireland continues to grow. Internet penetration has increased to 96% of the business sector, and 33% of the adult population had Internet access at home at the end of June 2000, which represents a 25% increase since April 2000. The incumbent's share of the market for the provision of Internet services is approximately 60%.

ODTR has adopted two decisions concerning the interconnection of calls destined for Internet services and number translation codes during the past two years. The first decision provides that issues between operators should be resolved through commercial agreements based on specified principles. The second concludes that there is a move to a more stable and transparent regime for interconnection for calls destined for the Internet and number translation codes (NTCs), and the new rates proposed by Eircom provide significant savings for operators.

However, OLOs expressed concern that there is no transparency in respect of the average holding time to justify the retention rates listed in respect of 1891, which is regarded as an interconnection service. According to them, Eircom has a virtual monopoly in the provision of 1891 access in Ireland, as there is no interconnection for these low-cost dial-up Internet calls. Eircom justifies its discounted rates from the cost of a local call by the fact that fewer network elements are used for a 1891 call than for a normal local call. ODTR set out the principles governing what costs Eircom can and cannot recover from other operators for services using non-geographic numbers. Eircom has calculated charges in accordance with these principles, resulting in savings for operators ranging from one third to one half for some of the rates. Following an investigation, ODTR did not find evidence of below-cost selling in relation to 1891. Details of pricing are included or to be included in the separated accounts.

ITALY

OVERVIEW

The Fifth Report noted that competition was opening up in Italy, despite some transposition and implementation problems. These mainly concerned the licensing regime, the completion of tariff re-balancing, the timely introduction of carrier pre-selection and number portability, numbering allocation, the granting of rights of way, and the fact that the NRA was not yet fully operational.

The NRA has now adopted a number of important implementing measures aimed at ensuring that the communications market is efficient. The most significant regulatory changes are the Decision on local loop unbundling of March 2000; the adoption (in cooperation with the Ministry) of the licensing and regulatory framework for UMTS; the Decisions of December 1999 and April 2000 regulating the provision of wholesale ADSL; the introduction of carrier pre-selection and number portability; and the new framework for general authorisations. A Decision was also taken to establish a universal service fund for 1999.

Detailed regulations are still urgently needed in certain areas, and have been adopted late in other areas (cost accounting, rights of way), and there are difficulties in implementing the regulations in other areas (tariff re-balancing, numbering). Further strengthening of regulatory action by the NRA is required. The new Voice Telephony Directive (98/10/EC) and the new Leased Lines Directive (97/51/EC) have not yet been transposed. A draft law transposing these Directives is being adopted through a long procedure: the text is before Parliament and could be approved by the end of 2000.

The telecommunications services and infrastructure market has expanded rapidly in 2000. The fastest growth has been in mobile telephony: the Italian market is now the largest in Europe in terms of subscribers and value; by the end of 1999 the number of mobile subscribers exceeded the number of fixed lines. The mobile penetration rate is 63%, among the highest in Europe, up from 44% at the time of the Fifth Report. The number of Internet subscriptions per 100 inhabitants grew from 4.4 to about 16. The total number of individual licences (infrastructure; voice; voice and infrastructure) has more than doubled since last year (from 60 reported in the Fifth Report to 125 in July 2000). The market is subject to increasing competition, as can be seen from the fact that the incumbent's shares of the markets for outgoing international and long-distance calls were 68% and 93% respectively in 1999, down from 86% and 97% respectively in 1998.

NATIONAL REGULATORY AUTHORITY AND APPEALS

There do not appear to be any concerns about the NRA's independence from the incumbent.

The transfer of staff from the Ministry to the NRA has been completed, and the total number of staff has increased from 80 in 1999 to 200 in 2000. However, new entrants claim that there are still insufficient resources to deal with regulatory matters. Doubts remain about whether the NRA has sufficient staff to perform effectively its wide duties (covering both audio-visual services and telecommunications), and especially to adopt measures in good time (decisions suffer delays). The NRA acknowledges that its responsibilities in the audio-visual field absorb a lot of its resources.

Some of the NRA's functions are carried out with the support of the Ministry (numbering, licensing). Operators say that the NRA is not yet fully operational in all its functions, and it is not clear which functions have not yet been transferred from the Ministry to the NRA. The Italian authorities contend, however, that the distribution of tasks between the two is clearly defined by the relevant agreement, and that cooperation between the two authorities works well (as in the case of 3G systems). The agreement, which has already been renewed twice, is intended to lapse once the NRA is fully staffed.

New entrants believe that the NRA should improve its role as dispute mediator. The NRA reports that of the 5 cases which have been lodged so far this year (compared with 4 in 1999), 4 have been concluded with an agreement between the parties (all concerned interconnection or roaming). One case (opened in April) has yet to be settled.

In October 1999 the NRA adopted a Decision setting out the key principles regulating public hearings and consultations, in order to ensure greater transparency in decision-making. In addition, the unit set up to monitor the implementation of unbundling, carrier pre-selection and number portability provides continuous and regular feedback to interested parties on these important issues. However, operators claim that the existing mechanisms should be further improved to guarantee transparency in proceedings and hearings/public consultations.

The court competent for hearing appeals is the *Tribunale Amministrativo Regionale* (TAR), and in a second stage, the State Council. It is designed as an appeal mechanism in the field of administrative law. Operators report that unless TAR grants an injunction suspending a disputed measure, the time taken to reach a final decision could be too long (two years on average). They also indicate that very few cases have been accepted so far.

LICENSING

The Fifth Report noted that licensing issues were a major concern as regards procedures, a confused division of tasks between the Ministry and the NRA, and the legislation, which needed to be brought in line with Community law.

The situation has improved significantly since last year: licences are issued more quickly and procedures run more smoothly. Moreover, the new framework for general authorisations, which repealed the old Decrees on data communication and satellite services, significantly simplified procedures by introducing the wide use of declarations, also solving implementation problems with regard to satellite services (SNG and VSAT) reported by operators. The same Decision also abolished the fees for receive-only VSAT terminals. One question remains open: the time limits for issuing authorisations or licences for satellite network services in the shared bands appear to be longer than those laid down in the Licensing Directive. However, the NRA confirmed that new procedures are being drafted in line with European best practices.

Sixty-nine operators offer public voice telephony at national level, and 16 on a regional basis (compared with 36 and 3 respectively in 1999). Fourteen operators have a national network licence, 36 regional network licence level only (up from 4 and 15 respectively in 1999). The licensing regime for UMTS has been fully adopted.

The main concern is about the old concessions, which should all be adapted to the current licensing regime (according to the Licensing Directive, this should have been done by 1 January 1999). This is important in order to clarify a confused legal framework, in particular with regard to past rights in the fields of numbering, frequencies and related fees. The main concessions are held by Telecom

Italia (TI) and the two main mobile operators, and were granted under the pre-liberalisation framework. This also concerns other specific markets in which TI was active, such as maritime communication services, and concessions granted to other operators. According to the NRA, old concessions will be replaced by licences by the end of 2000, while the legal framework for licensing will be reviewed in parallel.

Although switch-less reselling is allowed, new entrants have argued that a clear set of rules has not been established. The NRA reports that the rules for reselling and service provision covering the cases of branded and unbranded air-time have been clarified for mobile networks. A ruling will also be adopted for fixed networks.

The Government is working on a legal framework for the licensing of radio-communications for private use. A draft decree currently pending will set out new licensing conditions. Operators complaint that no licenses were granted due to the lack of a new regulatory framework.

INTERCONNECTION

TI's RIO is updated annually, and the NRA has regularly extended the number of services included and reduced the prices. Interconnection charges are in line with best practice at EU level for local access, single transit and double transit. The NRA has continued its policy of ensuring that the interconnection regime is the least restrictive possible.

The RIO 2000 has just been modified by the NRA. The main changes concern the reduction of the charges for number portability and carrier pre-selection; the reduction of the charges for interconnection (at local and at single transit level) to a level below the upper limit of the best current practice so as to improve competitive conditions for new entrants in that market; the inclusion of certain non-geographical services; the inclusion of the terms for interconnection for the provision of Internet access; and the inclusion of terms and conditions for the provision of half circuits for interconnection. These amendments appear to remove most of the concerns expressed by new entrants.

Fifty-one fixed-to-fixed interconnection agreements have been concluded (up from 22 in July 1999), more than 10 agreements for mobile-to-fixed network (8 in 1999), and 6 for mobile-to-mobile interconnection (3 in 1999). A number of further agreements are currently under negotiation.

The incumbent has expressed concerns about reliance on a 'best current practice' approach, on the grounds that it is not related to the real costs of providing interconnection. In this respect, the Fifth Report noted that TI's costs were not sufficiently transparent. A detailed verification of compliance with the cost-accounting system for interconnection should be carried out.

New entrants argue that some other points have still to be resolved. These concern the criteria for the design of a new interconnection structure independent of TI's network architecture, which the NRA should have set by May 2000. The NRA launched an open public consultation, which ended in July. The NRA reports that it is now considering the results of the public consultation in terms of the cost/benefit of regulatory measures in the data and voice network. Another issue raised by new entrants concerns reciprocal interconnection for traffic terminating on the networks of new entrants. Following the results of a proceeding issued in July by the National Competition Authority, TI accepted a number of conditions restoring fair competitive conditions.

With regard to fixed-to-mobile interconnection, the NRA affirms that the decision of December 1999, which set the structure of fixed-to-mobile calls, has had a positive impact on tariffs, in some cases resulting in price reductions of more than 50% of the peak rate. Mobile termination tariffs are

below the European average; however, new entrants in the fixed market are still concerned about the level of mobile termination and about the effective application of the NRA's Decision. It appears that mobile operators consider that the competitive model is already showing its positive effects, i.e. fostering the reduction of mobile termination tariffs.

LOCAL ACCESS

With a view to meeting the concerns of new entrants regarding the lack of access networks competing with those provided by the incumbent, on 16 March 2000 the NRA adopted the Decision on the unbundling of the local loop. This Decision covers physical unbundling of both copper and fibre, logical unbundling (wholesale service provided by incumbent as a substitute, when access is not available), collocation, and other side measures, but not shared access since, according to the NRA, this was not requested by the new entrants.

TI presented its offer for unbundled services in May (setting the price for unbundled access to the copper local loop at €13.58 per month). The service is being tested at 12 sites (with a maximum of 3 000 customers per operator) for three months starting on 1 October (Milan) and 30 October (Rome and Turin). Fifteen operators have applied to take part in the tests; 11 have signed the relevant contract. An external consultant is assisting the NRA in the evaluation of the economic conditions.

New entrants consider that the proposed price is too high; that collocation is used as a barrier to entry; that access to sites is problematic; and that the procedures are difficult to implement. In general, they refer to a difficult negotiating process. The NRA has set up a unit to monitor the implementation of unbundling, carrier pre-selection and number portability; it is working actively with TI and the new entrants. A first Decision has been taken on outstanding issues regarding the trial phase on which the incumbent and the new entrants could not reach an agreement.

It is expected that new entrants will be able to offer service by the end of the year. The NRA's decision on the incumbent's offer is expected by the end of October/November. TI appealed against the Decision with regard to the unbundling of fibre and the extension channel.

Progress can also be reported with regard to ADSL services since last year's Report. TI has been authorised to offer ADSL retail service for Internet access at 640 kbit/s, provided it also offers a wholesale product to its competitors. This has been available since January 2000. In April the NRA modified the economic and supply conditions of TI's wholesale offer for 640 kbit/s. TI is nevertheless offering xDSL services at speeds of 2-8 Mbit/s, without offering a wholesale product to its competitors. Operators claim that this is a breach of the NRA Decision, which requires a wholesale product for every retail xDSL service offered by the incumbent. The Rome Court of Appeal accepted an appeal by a group of new entrants blocking TI's retail offer for high-capacity services ("Ring") since the corresponding service was not available at a wholesale level. The effective unbundling of the local loop should resolve this issue.

The results of a consultation concerning wireless local loop (WLL) were made public in February 2000. New entrants argued that the situation is uncertain as regards the number of licences, the geographical coverage, the conditions, the licensing procedure, fees, and the timing of the introduction of WLL, and asked for rules to enable trials to take place. The NRA says that it will adopt a Decision on the provision of WLL broadband services in the 24.5 – 26.5 GHz band within the next few weeks. This, in conjunction with other side measures, should clarify the licensing framework for WLL services. With regard to the 27.5 – 29.5 GHz band, the NRA is awaiting ratification of the corresponding CEPT Decision, which should be taken in late October.

New entrants argue that a limited portion of spectrum in the 3.4 – 3.6 GHz band (provision of local area network services) is available to the incumbent for historic reasons (the old concession), and would welcome it be freed for WLL services. This portion of the spectrum is currently assigned to the Ministry of Defence. The NRA is asking the Government to re-farm the spectrum for WLL as soon as possible.

The NRA will soon grant test licenses to manufacturers for trials in the 40.5 - 42.5 GHz band for WLL high-quality audio-visual services. This should end the current deadlock resulting from the fact that, on the one hand, no manufacturer has started producing equipment in the absence of demand, and, on the other hand, the corresponding licence procedures have not been drafted since manufacturers are not producing equipment able to operate in that frequency band.

UNIVERSAL SERVICE/CONSUMERS/USERS

With regard to financial year 1999, the NRA decided to set up the sharing mechanism. TI, which has a universal service obligation (USO), provided its net cost estimate of €295 million for financial year 1999, taking account of indirect benefits. An independent auditor reduced TI's estimate of the net cost by almost half. The NRA further reduced this amount to about €62 million. This reduction is mainly due to the calculation of indirect benefits (about €48 million) and the exclusion from the net cost of services considered as not genuinely universal and unprofitable customers in profitable areas. The contribution of each operator is calculated as a proportion of its revenues less interconnection, leased lined and roaming costs. The sharing mechanism extends to mobile operators. TI will be the largest contributor with 57% of the total, followed by TIM (28%), Omnitel (about 14%) and the second largest fixed operator Infostrada (1%). New entrants are exempted from contributing to the fund if their share of contribution is less than 1%.

The NRA's Decision of August 2000, inter alia, requires the incumbent to indicate for the year 2001 which services it would not provide in the absence of a specific obligation. It also provides for the possibility for other operators to provide the universal service throughout Italy or in specific regions.

On 1 June 2000 the NRA adopted a targeted tariffs scheme for the provision of voice telephony services to disabled users and users with special social needs. This includes a 50% reduction in the monthly line rental charge for families meeting specific economic criteria (annual income of less than €6 713) and social criteria (e.g. unemployed breadwinner), and free line rental for deaf people who use special telecommunications equipment. The net cost of this measure has been included in the net cost of universal service, but identified separately. The special tariff scheme is expected to become operational in the course of 2001, following the adoption of an implementing decision concerning the national social security service.

The incumbent considers that the adoption of special terms for users with special social needs guarantees the affordability of voice telephony services, making the current price cap mechanism unnecessary. New entrants support the principle of financing the USO out of general taxation; mobile operators do not oppose the financing of the fund with contributions from operators calculated on the basis of net revenues.

As a condition imposed in the SEAT-TI merger, TI has to offer new entrants access to its directory database free of charge, and to include their numbers in the database. This will be managed by a third party from 2003, under the control of the NRA.

The NRA has wide-ranging responsibilities with regard to subscribers and users, and in settling complaints and disputes. On the basis of complaints from consumers, the NRA puts pressure on operators, particularly to guarantee fair information, the right of choice, and quality of service.

Operators have to publish a service agreement covering relations with consumers. The NRA is conducting a public consultation on this issue with a view to setting specific guidelines, including minimum quality-of-service parameters.

MOBILE SERVICES INCLUDING THIRD GENERATION AND ROAMING

Operators complained about lack of transparency regarding frequencies for second-generation (2G) mobile, since plans showing the assignment of frequency to individual operators were not available. In February 2000, the Ministry of Communications adopted an updated version of the National Frequency Plan.

Four mobile licences have been granted so far (the fourth mobile operator started commercial operations only in May 2000, so competition in that market has increased since last year's report). Demand for 2G services continues to grow rapidly, both for voice telephony and for special services, such as SMS. Italy has the highest ratio of subscribers per MHz in the EU. As a pro-competitive measure, TIM and Omnitel are obliged to offer roaming to the networks of the third and fourth mobile operators (for a limited time). There are currently no mobile virtual network operators. The analogue band is still occupied by the incumbent's mobile subsidiary. The analogue system is to be phased out by 2005. The analogue switch-off is complicated by the large, albeit steadily decreasing, number of analogue subscribers (down from 3.6 million in 1998 to 3.2 million in 1999).

Operators consider that 2G frequency re-farming should be accelerated in order to ensure sufficient network capacity to cope with the increasing number of customers per MHz and the provision of national roaming to new entrants. According to the National Frequency Plan, further GSM 1800 frequencies are to be allocated by January 2002. However, given the frequency scarcity referred to above, in March and May the NRA informed the Government that it was necessary to free all the GSM 1800 spectrum. In parallel, the NRA has launched an investigation of the needs and current use of the radio spectrum by the four operators. In August the Ministry reached agreement with the Ministry of Defence to free 5 + 5 MHz from 1 January 2001; a further 5 + 5 MHz will be available in the course of 2001, and a further 20 + 20 MHz will be made available to cover the needs identified by the NRA. Before assigning the frequencies the NRA is awaiting the adoption (expected in the next few weeks) of a Ministerial Decree modifying the National Frequency Plan. Besides the measures above, the NRA is expected to review the assignment procedures by 30 June 2001.

Italy has completed the licensing framework for 3G systems. This included a number of NRA Decisions regarding the general principles for licensing, asymmetric measures to enable new entrants to compete with GSM operators with a 3G licence (including roaming between 2G and 3G networks), and possible access for mobile virtual network operators (MVNOs). The call for tenders and the tender procedure were adopted jointly by the Prime Minister's Office, the Ministry of Communications and the NRA at the beginning of August.

Italy has completed the tender for 3G licences. Five licences valid for 15 years will be granted by the end of the year. The tender procedure was in two parts: a beauty contest, followed by an auction with successive and unlimited rounds of bidding. The starting point for the auction was €2bn per licence. Each licensee will be granted 2 × 10 MHz of paired spectrum plus 5 MHz of unpaired spectrum. Licensees will be required to cover regional capital cities within 30 months after 1 January 2002. By the end of the next 30-month period, licensees will be required to cover all main provincial cities.

With regard to 3G systems, MVNOs will not be granted access before 2010, i.e. eight years after the issue of the licences, so as to allow the licensees to recover the cost of their investments in network

infrastructure, licence fees, etc. UMTS frequencies are being vacated by the public broadcaster RAI TV, in accordance with an agreement reached between RAI and the Ministry. The NRA's Decision of December 1999, mirroring the National Frequency Plan, does not provide clear timing for the availability of frequencies. However, operators are confident that the Ministry is taking the necessary measures to free the spectrum. The Ministry and the NRA confirmed that this is the case.

TARIFFS

In December 1998 and June 1999 the NRA took two decisions to allow tariff re-balancing, and in July 1999 made its final decision to introduce a price-cap system for the period 1999-2002. The price cap covers the period from August 1999 to 31 December 2002 and, for all voice telephony services, is set at the inflation rate minus 4.5%. It includes three sub-caps for residential services; installation and line rental; and local telephony.

Between 1997 and 2000 the average price of international calls fell by 30% for residential users and by 36% for business users, and the price of a 3-minute and a 10-minute long-distance call fell by 19% and 26% respectively. The line rental charge and the cost of local calls have both risen (+7% for a 10-minute local call between 1997 and 2000).

The audit carried out by an independent auditor on behalf of the NRA confirmed the persistence of an access deficit of about €2.3bn for 1997, falling to €1.54bn for 1998. These data have been supplemented by the report of the audit for fiscal year 1998, completed in July 2000, which included additional information on the evolution of the access deficit. According to the NRA, access deficit should disappear by 2002, due to tariff re-balancing, market evolution (i.e. the sale of ISDN and other highly remunerative services on the same access network), and cost savings. The inflation index for 2000 is over 2%, which allows an annual nominal increase in the line rental charge, through the corresponding sub-cap, of over 3% per year.

However, TI claims that the NRA's assessment of tariff re-balancing does not take account of line rental costs related to the relationship with the retail consumer (billing, customer assistance, etc.), which it estimates at roughly €0.57bn. TI considers that the sub-caps on the line rental charge and on local tariffs (respectively set at 1% + inflation and 0% + inflation) prevent it from completing the re-balancing process. New entrants argue that the level of access deficit claimed by TI is not accurate, and fear that it will result in increases in the line rental charge being offset by further decreases in call charges, thereby reducing their potential profit margin. Some are concerned, in the context of local loop unbundling, about the risk of a price squeeze for new entrants if TI is not allowed to set its line rental charge at a level sufficient to cover all underlying costs.

The incumbent's discount policy continues to be a cause of concern to its competitors. In July a group of new entrants presented a detailed dossier to the NRA, claiming that TI's discounts to large businesses and public administrations resulted in retail prices below the corresponding interconnection rates charged to new entrants. In September the NRA opened an inquiry into possible anticompetitive behaviour by TI, which is expected to be concluded within 90 days. Earlier in July the NRA had authorised TI to offer, on a temporary basis, a specific tariff package for end users, since it included economic conditions which were not below TI's costs for the provision of voice telephony services. In parallel, the NRA launched a specific inquiry with a view to ascertaining whether TI's interconnection charges to competitors are applied equally to its internal divisions.

According to the Italian framework law, all operators must communicate new offers to the NRA at least 30 days in advance. New entrants consider this obligation to be disproportionate, since they are

unable to react quickly to new offers from their competitors. The NRA says that the measure is not discriminatory, since it applies to all operators.

COST ACCOUNTING

Although auditing for fiscal years 1998 and 1999 was also launched late, some improvements can be reported since last year. The audit for accounting year 1998 was completed in July 2000. It would appear that the statement of compliance has not yet been published, and that a description of the cost accounting system is not available to third parties. The degree to which compliance with the cost-accounting system for interconnection has been verified remains to be demonstrated.

The audit for fiscal year 1999 is under way. TI recently provided preliminary data (the final data for 1999 were provided in September). It will probably be completed early in 2001, once the NRA has established a precise cost-accounting methodology. In order to draw up the guidelines for cost accounting, the NRA commissioned a consultant to draft criteria for a cost-accounting model and the related methodology, with particular reference to access services. According to the NRA, these criteria will be adopted in November 2000.

Some progress can be reported with regard to cost accounting of interconnection for both fixed and mobile operators. With a view to gathering the opinions of market players on the introduction of a new costing model based on current costs for fixed interconnection, in spring 2000 the NRA launched an open public consultation. Following the results of this consultation, the incumbent's RIO for 2001, which is to be published in November 2000, should be based on current costs. The NRA has yet to define the corresponding cost-accounting methodology (this was expected in June). With regard to mobile operators, in June the NRA adopted a methodology of fully allocated current costs for mobile termination for 1999, and it is currently verifying mobile operators' accounting systems. This is intended as an intermediate step to implementation of the LRIC methodology to mobile operators with significant market power. In the case of leased lines, the NRA considers that the data provided by the incumbent were not sufficiently disaggregated to carry out an assessment of TI's costs.

Market players are concerned that different cost-accounting methodologies have been set for different markets/services. In their view, this results in an unharmonised costing methodology. The pricing of the local loop will be based on fully allocated historic costs, while the RIO will be priced at current costs from 2001. The same costing methodology (current costs) has been imposed for mobile services, that should move to LRIC only in the future. The NRA explained the difficulty of moving away from a fully allocated historic costing methodology. The present situation is a transitional phase, leading to the implementation of current costing of all services. The NRA intends to scrutinise the impact of the changes under way before completing the transition. Once current cost accounting has been tested, it should be used for the pricing of all services (including access to the local loop, number portability, and carrier pre-selection).

LEASED LINES

In 1999 the incumbent was still the sole supplier of leased lines. Competition is now developing in long-distance and backbone services provided by alternative operators. The incumbent still dominates the local and short-distance markets. Over 60% of demand was accounted for by businesses, with ISPs taking only about 2% of the total.

The October Decision amending the RIO 2000 imposes the inclusion of terms and conditions for the provision of half circuits for interconnection, for circuits of 64 kbits, 2 Mbits and 34 Mbits, 2 km and 5 km long. In assessing the corresponding economic conditions, the NRA will take account of the price ceiling indicated in the Commission Recommendation on leased lines interconnection pricing.

Data for July 2000 indicate that the situation with regard to international leased lines has improved, with a significant fall in tariffs from 1999 to 2000. With regard to 2 Mbit/s half circuits, reductions of about 40% are reported for a line to the USA, and about 30% for distant and near EU lines. With regard to 64 kbit/s half-circuits, tariffs for a line to the US have decreased by about 30%; the reduction is about 19% for lines to distant and near EU. However, tariffs remain significantly above the EU average for all kinds of leased lines, except for 2 Mbit/s lines to the USA (which are below the average), and for 2 Mbit/s lines to far EU (just above the average).

The Fifth Report indicated that in 1999 tariffs for national half circuits for all distances (2 km, 50 km, and over 200 km) were above the EU average for most types of line. Following an investigation of the provision of leased lines, in July 2000 the NRA instructed the incumbent to reduce its prices for urban and inter-urban lines by an average of 23.7%. The modified tariffs have not yet been published. The NRA is expected to adopt a decision on the correct application by TI of this decision by the end of October. The conclusion of the investigation refers to measures to increase the transparency of the offer (calculation of the electrical distance), improve delivery and timing, modify the economic conditions, widen the range of services offered, and prepare a specific service level agreement for backbone and short-distance circuits.

NUMBERING

The NRA issued a new Numbering Plan in July 2000, updating and modifying the Numbering Plan of July 1999. Responsibility for numbering is currently shared between the NRA and the Ministry. Although the procedures for number allocation are adopted by the NRA, numbers are assigned by the Ministry. New entrants claim that the division of tasks between the Ministry and the NRA still needs to be improved.

The new Plan has been updated, inter alia, to take account of the introduction of new services and of the related numbering requirements. A dedicated number range (first digit = 7) for Internet access has been introduced, as requested by new entrants.

The initial implementation of carrier pre-selection (CPS) and number portability (NP) has been slow and difficult. The NRA's Decision regarding the general principles was not adopted until the end of 1999. This late decision and the introduction of two separate profiles requested by new entrants delayed the introduction of CPS for intra-district calls until May 2000 for Milan, June 2000 for Rome, and July for the rest of Italy.

However, subsequent NRA decisions significantly simplified the ordering procedures originally offered by the incumbent by increasing the number of orders to be processed each day (set at 12 000 for CPS) and generally facilitating the introduction of these facilities. The economic conditions are also being modified. The service is available for all kinds of calls (international, long-distance, local, mobile). Thirty-four operators have signed an interconnection contract for CPS, with 13 operators already active on the market, while 13 contracts for NP have been signed. Over 200 000 CPS contracts have been implemented so far; about 30% of orders have yet to be processed. The implementation of NP remains slow; however, demand is low, lower even than the minimum number of orders which the incumbent is required to process (1 100 orders per day). An NRA task force has

been set up to monitor CPS, NP and LLU processes, and also deals with the alignment of NP and LLU provision processes.

New entrants have expressed concerns about the efficient allocation of numbers, as the Numbering Plan allocates geographical numbers in blocks of 10 000. New entrants claim that this results in there being no geographical numbers available in some districts. The NRA reported that, following an appeal admitted by the Regional Court, the above provision is currently being modified, in cooperation with the Ministry of Communications, so as to allow a more flexible method of number allocation in local districts (operators are allowed to divide the block of 10 000 numbers into sub-blocks of 1 000 numbers related to local areas within a given district). In addition, the NRA reports that the New Numbering Plan includes measures aimed at solving the shortage of geographical numbers (e.g. the availability of geographical numbers starting with the digit "1", which allows the use of new numbering blocks (0112, 0113..)).

Operators indicate that the numbering database is still managed by a subsidiary of the incumbent, although number allocation as such is dealt with by the Ministry (the Technical Institute) via the NRA. Although there is no evidence of discrimination, this situation does not ensure independence in the management of numbering and separation between regulatory and commercial functions. The NRA says that the transfer is being planned.

Operators have argued that there are problems in relation to the allocation of short codes, and that their use needs to be rationalised in order to avoid possible discrimination between the incumbent and its competitors. New entrants continue to argue that the procedures and timing for number allocation are not transparent. It would appear that the problem subsists in the New Numbering Plan adopted by the NRA at the end of July.

Mobile number portability is to be introduced by 1 June 2001. It appears that the mobile operators have different positions, with the fourth operator strongly supporting its implementation and the other three operators concerned about the associated costs/benefits.

RIGHTS OF WAY

Market players have serious concerns about the granting of rights of way. The concerns noted in the Fifth Report remain.

Operators have argued about possible discrimination in the granting of digging rights, given the involvement of the municipalities in telecommunications (the local utility obtains the right to dig far more easily, or digging is denied to other operators, thus establishing an obligation to connect through the network of the local utility). In some cases (Bergamo, Padova), it appears that digging rights have been reserved to the municipality.

This situation is detrimental to new entrants' infrastructure deployment plans. The situation is highly variable, since different approaches are adopted by the different local authorities. Some municipalities (Milan, Modena, Naples, Reggio Emilia, Rome, Turin, Varese) have drafted specific regulations and allow digging under certain conditions (fees, sharing of infrastructure, availability of ducts to the municipality, etc.). In other cases (e.g. Bologna, Brescia, Catania, Como, Florence, Genova, etc.), the municipality does not allow digging (in some cases this was possible earlier), or no decision has been taken on this matter. Operators also complain about the diversity of approaches followed by local municipalities with respect to fees, sharing of infrastructure, procedures, etc.

New entrants report problems in obtaining rights of way from ANAS, the State department maintaining national roads. It appears that ANAS imposes costly conditions for granting rights of ways alongside/under these roads (such as reserving capacity for ANAS, or the payment of a fee linked to turnover).

The NRA has opened an investigation with a view to drafting an *ad hoc* decision regulating the granting of rights of way; however, the power of the NRA is limited, as most powers are allocated at local level. The NRA also considers that the expected revision of the licensing scheme should provide operators with clear rights with regard to digging.

A significant improvement has been adopted with regard to access to landing stations of submarine cables, which are controlled by the incumbent. The NRA's Decision of October 2000 modifying the RIO required TI to include terms and conditions for access to submarine cable stations.

With regard to antennas for mobile telephony, the first two mobile operators are asked to grant sharing of sites and antennas on cost-oriented economic terms in order to facilitate the market entry of the 3rd and 4th mobile operators. Mobile operators claim that this provision has remained substantially ineffective because of the limits imposed by national legislation on electromagnetic radiation emissions. According to the NRA, however, cooperation on mast sharing functions well in small cities and less populated areas.

According to mobile operators, it is impossible for two radio base stations to share the same space without exceeding the limits set by Italian legislation for the exposure of the general public to electromagnetic fields. These limits are stricter than those indicated by the Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (1999/519/EC). New mobile operators claim that, as a result, in large towns it is very difficult to obtain new sites so as to achieve coverage of all the territory. Some of the powers are allocated at local level, and it appears that some regions have set lower limits. However, Parliament is debating a draft Law harmonising the limits at national level.

DATA PROTECTION

The Telecommunications Data Protection Directive (97/66/EC) has been substantially transposed by Decree No.171 "*Disposizioni in materia di tutela della vita privata nel settore delle telecomunicazioni*" of 13 May 1998. However, it appears that some specific provisions have not been properly transposed.

Data protection is the responsibility of the Data Protection Authority and the Ministry of Justice.

New entrants have expressed concern about the possibility that TI may be using data on traffic terminating on the networks of its competitors for commercial purposes. Operators drew the NRA's attention to this matter during a hearing. New entrants claim that the incumbent offers discounts to their business clients which are tailored to the client's traffic profile. According to the new entrants, this is possible only by monitoring interconnected traffic.

Customers and new entrants indicated that the national law is too restrictive with regard to the automatic deletion of digits in itemised bills - currently 3 - and asked for some flexibility in this respect, i.e. for the facility to be provided on request only. The Italian authorities, however, consider the corresponding provision to be fair and balanced.

INTERNET

The Italian market for Internet service provision is growing rapidly, with many small ISPs on the market in addition to the main established companies. The number of Internet subscriptions per 100 inhabitants has more or less quadrupled since last year (from 4.4 to about 16). The largest ISP is the Internet subsidiary of the incumbent, which has a market share of about 53%. The freenet model contributed to the growth in the number of subscribers in 1999 (from 3.2 million in 1998 to 8.2 million in 1999).

The NRA has adopted regulatory measures fostering access to the Internet and improving the interconnection conditions for ISPs. These include a modification to the old Numbering Plan, which allows the use of a dedicated number range (first digit = 7) for Internet access; and the inclusion in the RIO of interconnection for Internet access for ISPs. The provision of wholesale ADSL services also specifically addressed some needs of the ISPs.

The Government recently presented to Parliament a bill to allow ISPs to benefit from the same reference interconnection offer as applies to telecommunications operators with an individual licence. Moreover, the financial law, presented to Parliament at the end of September, includes a measure promoting fast Internet access for schools, research centres and for people with low incomes.

LUXEMBOURG

OVERVIEW

The Fifth Report noted that although a series of licences had been issued, the fixed market was still fully dominated by the incumbent operator and that new entrants had not yet started operating. It identified concerns about the effective separation of powers within the Ministry between regulatory functions and control of the State's stake in the incumbent operator; the prohibitive level of interconnection charges, in particular for domestic (local) calls; the incomplete scope of the reference interconnection offer (RIO); ILT's lack of powers to settle interconnection disputes; uncertainty about the timely introduction of carrier pre-selection; and the fact that no new entrant had yet been authorised to lay cables, due to the lack of applicable procedures and the lack of coordination among the administrations concerned.

Since then, it appears that the issue of the separation of regulatory functions has almost been resolved. ILT has taken a series of measures which have created favourable conditions for market entry: assignment of wireless local loop frequencies, completion of the RIO, reduction of interconnection charges, introduction of carrier pre-selection and provision of collocation rooms for new entrants. The number of licences granted is large relative to the size of the country. However, although Luxembourg has put in place a number of operational measures to allow competition to take off, there is still only limited competition, particularly as regards the placing of infrastructure and interconnection. Six interconnection agreements have been concluded. However, as a result of gaps in the implementation of the EU regulatory package, in particular with respect to rights of way, a number of operators have been unable to start operating.

The market is still dominated by the incumbent operator. There are two operators offering mobile services, one of them being the incumbent's subsidiary. Five operators offer national voice telephony and nine offer international voice telephony. National public network services are offered by six operators and international public network services by thirteen operators.

NATIONAL REGULATORY AUTHORITY AND APPEALS

The Fifth Report identified concerns about the effective separation of powers within the Ministry between regulatory functions and control of the State's stake in the incumbent operator. A Government reorganisation which took effect on 11 August 1999 resulted in the regulatory tasks being assigned to the Ministre d'État, who has delegated his functions to the Minister for Communications. The Board of Directors was reorganised at the end of 1999, with two officials from the Ministry of Finance being appointed as the new Chairman and as a Member of the Board, and an official from the Ministry of State (Media and Communications Service) as Vice-Chairman; given the delegation of regulatory functions from the Ministry of State to the Ministry of Communications, none of those officials appears to work within a Ministry responsible for regulation.

New entrants welcome the very constructive and proactive approach by the national regulatory authority - Institut Luxembourgeois des Télécommunications (ILT) - which uses its powers to the full in order to implement the regulatory framework. They emphasise its strong role in conciliation.

Under the law on administrative organisation (*Loi du 7 novembre 1996 portant organisation des juridictions de l'ordre administratif*), operators can appeal against ILT decisions to the administrative courts. For the enforcement of individual rights with respect to interconnection, operators must apply directly to the civil courts.

LICENSING

As noted in the Fifth Report, in practice licences are granted in good time, even though the time limits laid down by the legal framework do not correspond to the limits provided for in the Licensing Directive.

Licensing conditions are considered to be reasonable. Not all licensing conditions have been determined yet, as the corresponding decree on radio paging has still to be adopted and published.

Wireless local loop licences have been assigned to five operators (Decision 00/39/ILT of 31 July 2000). It was not necessary to resort to the intended beauty contest (Decision 00/34/ILT of 9 February 2000), as there were sufficient frequencies available for all applicants.

ILT has sent operators a questionnaire requiring them to report on a series of issues. Operators say that this places a heavy administrative burden on them, and some consider the scope of reporting to be excessive. Others accept that ILT might need these data in order to monitor the evolution of the market; however, ILT should review the questionnaire regularly to ensure that the scope of reporting is kept to the minimum needed. ILT claims that it needs to collect those data in order to report to the Government on the status of markets and to compile statistics. The EU regulatory framework does not prohibit the collection of data, and indeed it appears to be most helpful that ILT collects the data in question to form the basis of its analysis of the Luxembourg market. However, the data collected so far have not yet allowed any reporting.

As previously reported, operators consider licence conditions on quality criteria and targets to be excessive.

INTERCONNECTION

Negotiations between operators

New entrants consider the time taken to conclude interconnection agreements to be reasonable in cases where all issues are covered by the RIO; however, where other issues are involved, negotiations are reported to have lasted about nine months, which is regarded as excessive.

In its Decision 99/15/ILT of 31 March 1999, ILT fixed maximum limits of 4 months for the negotiation and 6 months for the implementation of interconnection agreements, starting from the beginning of negotiations (establishment of an agenda). However, new entrants have reported that those time limits have not been observed, i.e. negotiations have lasted longer than 4 months and interconnection has still not been provided more than a year after the negotiations were concluded.

The incumbent says that it has concluded five agreements with fixed operators, and that in all cases interconnection has been delivered within six months.

Reference interconnection offer

ILT set minimum conditions for the incumbent's reference interconnection offer (RIO) in Decision 99/15/ILT of 31 March 1999. It approved the incumbent's RIO 2000 (Catalogue d'interconnexion de l'Entreprise des Postes et Télécommunications) in its Decision 99/30/ILT of 17 December 1999. ILT can, where appropriate, modify the conditions of the RIO during its period of validity.

The minimum conditions imposed by ILT include two locations for interconnection. New entrants consider this to be insufficient, particularly as the two points of interconnection (POIs) provided only allow for interconnection at single tandem level. New entrants require interconnection at local level, which would enable them to reduce the length of leased lines, which are charged in relation to distance; in view of the current high level of interconnection charges, they consider that the setting of POIs exclusively at single tandem level deprives them of an essential opportunity to compete. The incumbent operator points out that its network was designed for national and international traffic only; the provision of interconnection at a local level would require a modification of the signalling system; the costs of such modifications would, however, be excessive, given that only one operator had requested interconnection at a point other than those currently provided. Construction of further POIs would therefore not be economically viable. ILT is currently examining whether the forthcoming RIO will include further POIs; this depends on the economic viability of introducing POIs at a local level, taking into account the traffic routed into local POIs, and the possibility that the introduction of two levels of charging might penalise new entrants. However, it is intended to fix further locations for interconnection of halved leased lines.

The incumbent has not so far provided collocation, claiming that there is no space available. As a result, operators have been unable to implement the interconnection agreements they have concluded. New entrants consider that they have thereby been denied interconnection. The incumbent points out that operators have realised virtual collocation; it is currently upgrading its facilities. In addition, in the meantime, 2 collocation centres are available at the 2 POIs.

The RIO sets out the essential conditions for termination and origination; collocation and links; transit services; and halved leased lines; however, it does not cover interconnection to mobile services. New entrants have expressed concern about the scope of the RIO, which does not cover interconnection for new services; interconnection of halved leased lines; and interconnection services for special numbers, such as freephone numbers. New entrants point out that they had to negotiate with the incumbent operator for interconnection to new services and special numbers (premium services), and that the negotiations were unreasonably slow. The incumbent points out that it had made a similar offer for interconnection to premium services to all operators. The forthcoming interconnection offer would cover this service.

Although the RIO has not been published, the incumbent must send it to any person requesting it within two days.

Tariffs

ILT has approved (Decision 99/30/ILT of 17 December 1999) the incumbent's interconnection tariff for 2000, which falls within the EU benchmark range for single tandem charges and involves a reduction of about 14.4% in the interconnection tariff. However, adequate comparison with the EU benchmark requires the call set-up charge to be taken into account, and then the tariff set substantially exceeds the EU benchmark for single tandem. New entrants point out that the tariff set is obviously not cost-oriented, as it exceeds the incumbent's retail tariff. The level of interconnection charges for domestic calls constitutes a prohibitive barrier to entry into the voice telephony market. High interconnection tariffs are a disincentive to offering voice telephony to end-customers relying on interconnection provided by the incumbent operator. Interconnection in Luxembourg is provided via a single point of interconnection, with a second point as a backup facility, and a single interconnection tariff is proposed for the origination and termination of all domestic calls. As most domestic traffic consists of local calls, new entrants consider that the reference for comparing interconnection charges at a European level should therefore be the charge for local interconnection. The incumbent claims that the level of the interconnection tariff still leaves a margin for new entrants. ILT pointed out that competition on long-distance calls is not possible in Luxembourg, given the size of the country; an operator entering the national market would necessarily have to pay

an interconnection charge for call termination and origination, without being in a position to offer long-distance calls. Therefore, there would effectively only be a small margin left between the interconnection tariffs and the incumbent's retail tariff. This would, however, be due not to excessive interconnection charges, but to the absence of an additional transport service offered by the new entrant. ILT pointed out that the forthcoming interconnection tariffs would be set on the basis of long-run incremental costs (LRIC) and would be lower than the current tariff.

Tariffs for interconnection to mobile services are not covered by the RIO and must be negotiated with the incumbent; the level of tariffs has not been communicated to the Commission.

Significant market power

The incumbent operator has been notified as having significant market power (SMP) on the various markets identified in the Interconnection Directive. Two mobile operators have been notified as having SMP on the mobile market, one being the incumbent's subsidiary. No mobile operator has been notified with respect to the national interconnection market.

Dispute settlement/conciliation procedures

New entrants consider ILT's lack of power to deal with interconnection disputes to be a major barrier to market entry. As mentioned in the Fourth and Fifth Reports, the current legal framework does not enable ILT to take binding decisions to solve interconnection disputes, but only to make proposals for conciliation. As a result, the conciliation procedure (under Article 27 of the Law, in conjunction with ILT Decision 99/21/ILT of 3 June 1999) has proved to be ineffective with respect to a series of issues. For this reason, dispute settlement is not regarded as a viable means of enforcing new entrants' right to interconnect. Due to its lack of powers, ILT was not in a position to resolve interconnection disputes in a series of cases, e.g. where a new entrant required interconnection at further points of interconnection in addition to the two provided to new entrants; where a new entrant requested interconnection for value added services; and in all cases where new entrants consider that mandating facility sharing is necessary to enable them to enter the market (antenna sharing, collocation). New entrants therefore consider that conditions conducive to enabling them to enter the market have not been set by ILT (interconnection points, facility sharing) or could only be agreed after lengthy conciliation procedures (interconnection for premium services).

Under the EU regulatory framework, the regulatory authority must resolve all disputes on interconnection, which implies that any operator must be in a position to bring his case to the regulatory authority and obtain a decision on his right to interconnect, the regulatory authority fixing the conditions. The Government currently has no plans to grant ILT the necessary powers, arguing that recourse to the court is a sufficient means for operators to enforce their rights.

LOCAL ACCESS

Some new entrants offer data transmission and Internet access. Luxembourg has a cable TV (CATV) penetration rate of more than 90%, and cable operators are expected to enter the local access market. No CATV network operators currently offer data transmission services. There is a large number of small regional and local CATV operators which will probably not be financially able to interconnect their networks with other network operators. Competition from CATV is therefore likely to take off only in urban areas. However, the Government has launched an initiative to encourage CATV operators to enter the telecommunications market.

Tests are currently being carried out to assess the viability of power-line-communication for data transmission. Two operators currently offer data transmission to enterprises via wireless local loop.

Local loop unbundling is not compulsory for any of the three types of access (high-speed bit-stream access, access to the copper line, and shared access). In the context of the proposed EU Regulation on unbundled access to the local loop, ILT is committed to set the conditions for the incumbent's reference offer for 2001.

UNIVERSAL SERVICE/CONSUMERS/USERS

Universal service obligation has not been mandated as the ILT considers that, so far, all requests for access to the basic services have been fulfilled.

Thus, no universal service financing scheme has been set up.

Quality of service appears to be ensured: all licences require operators to comply with the quality criteria laid down in Annex III to the Voice Telephony Directive, or more stringent criteria.

The directory service is provided by a single operator (EDITUS), which is a subsidiary of the incumbent. New entrants have expressed concern that they have to pay this operator to register their clients in the directory, even though the directory service is a profit-making activity. The incumbent says that new entrants are free to launch a directory themselves, that it would provide the necessary subscriber data, and that it had indeed already done so. Indeed, Article 43 of the Telecommunications Act requires operators to provide subscriber data to other operators. However, the conditions under which such data must be provided to directory service providers are not clear: in particular, no price criteria are set.

MOBILE SERVICES INCLUDING THIRD GENERATION AND ROAMING

The Regulation of 28 January 1999 lays down the conditions for use of the spectrum and ILT's Decision 99/24 of 16 June 1999 the conditions for assignment of frequencies. However, there is a lack of transparency as regards the available bandwidths, as the frequency allocation plan has not yet been established. It is expected to be adopted in October 2000, and to include rules on licence conditions for radio-paging, thus completing the framework for the granting of frequencies.

As described in the Fourth and Fifth Reports, two dual-band GSM 900/DCS 1800 licences have been granted, one to the incumbent and one to a new entrant. They have been assigned a similar bandwidth of frequencies. The phase-out of analogue mobile networks was completed in 1995.

On 18 May 2000 the Government decided on the principles for the award of third-generation (3G) licences: four licenses are to be awarded, with comparative bidding on the basis of predefined quality criteria; the bidding procedure is to be organised by ILT; facility sharing and reduction of sites will be important criteria; the UMTS Decision (129/1999/EC) will apply; the licences will be awarded in the first half of 2001. No decision has yet been taken on whether to impose national roaming between 2G and 3G.

There is no specific obligation on 2G or 3G operators to grant mobile virtual network operators access to their networks; however, there is a general obligation on SMP operators to grant access.

Operators are generally satisfied with the principles and the procedure. Some operators questioned whether the award of four licences was not excessive, given the small size of the market. Operators expressed a preference for a single infrastructure for 3G mobile services, combined with the provision of access to service providers, in particular on the grounds that environmental enquiry procedures make it extremely difficult to gain access to land in Luxembourg. The Luxembourg law provides for a "commodo-incommodo" procedure (Loi du 10 juin 1999 relative aux établissements classés), which makes the construction of radio-emission stations subject to public consultation and an environmental impact assessment. For the roll-out of the GSM network there were already 140

procedures pending. Every 3G station will be subject to the procedure. Operators believe that the creation of the 2 000 stations needed for 3G will suffer major delays, and expressed doubts about the Government's prediction that the third-generation mobile service will be operational at the beginning of 2002. The Luxembourg authorities are currently examining how to establish suitable procedures; however, progress depends on operators deciding on the structure of the network they intend to build.

ILT has set the conditions for the assignment of frequencies for wireless local loop services (Decision 00/34/ILT of 9 February 2000). ILT announced in Decision 00/39/ILT of 31 July 2000 that all WLL frequencies had been assigned to five operators.

TARIFFS

New entrants and the incumbent agree that the monthly line rental charge (LUF 480 (EUR 11.89886)/month) is obviously below costs. The line rental charge and retail domestic tariffs have not been assessed to ascertain whether they have been rebalanced and are cost-oriented. No timetable for the completion of tariff rebalancing has been communicated to the Commission so far. New entrants are concerned that the incumbent's voice telephony retail tariffs are not subject to control by ILT. They also complain that there is insufficient control of the incumbent's tariff policy as regards misleading publication of voice telephony tariffs, concealing the real cost of communications. A regulation imposing cost orientation of the voice telephony tariffs of SMP operators has not yet been adopted.

COST ACCOUNTING

The incumbent did not submit a description of its cost accounting system to ILT until 6 April 2000, and even then it was limited to interconnection; the regulatory authority has not yet verified the description. It is based on fully distributed current costs. The incumbent has not yet provided any description of its cost accounting system for leased lines and voice telephony. ILT is currently working on the accounting methodology, but no details have been published yet. As the necessary regulatory framework is missing, new entrants feel that the issue of cost accounting for voice telephony and leased lines tariffs is not being adequately addressed. They are also concerned that ILT is not properly monitoring the incumbent's obligation to keep separate accounts. ILT points out that it does not currently have the power to publish a statement of compliance of the incumbent's cost accounting system. However, such an obligation is expected to be introduced before the end of the year with regard to the cost accounting systems for leased lines and voice telephony.

Operators are concerned about the extension to all operators, including those subject to the declaration procedure, of the obligation to establish separate cost accounting systems, as they consider this to be an example of over-regulation.

LEASED LINES

New entrants are concerned that the incumbent operator grants major business customers discounts of up to two thirds off the published standard tariffs for leased lines, and that these discounted tariffs are not published and are not monitored by the regulator. A regulation imposing cost orientation of leased lines provided by SMP operators has not yet been adopted.

Tariffs for leased lines are currently not subject to cost orientation. A regulation imposing cost orientation of the leased lines tariffs of SMP operators has not yet been adopted.

Tariffs for most types of leased line are within the EU benchmark range. However, no information could be collected as regards the most frequently used type of leased line, the 2 Mbit/s 2 km circuits.

NUMBERING

No concern has been expressed as to the availability of sufficient numbers and the timely allocation of numbers.

Carrier pre-selection (CPS) was required to be available from 1 July 2000. Decision 00/35/ILT of 23 May 2000, as amended by Decision 00/37/ILT of 16 June 2000, requires CPS to be available for all calls (international and national together) from 1 July 2000 until 30 June 2001, while separate CPS for national and international calls will not be required until 1 July 2001. New entrants say that excessive interconnection tariffs and the fact that interconnection is provided only at single tandem level make it difficult for them to enter the national or local market. However, they welcome CPS for national and international calls, as this allows them to offer subscribers a complete package (of international/national calls). New entrants expressed concern that CPS is not available for fixed-to-mobile calls. Decision 00/35/ILT of 23 May 2000, as amended by Decision 00/37/ILT of 16 June 2000, clearly requires CPS for fixed-to-fixed and for fixed-to-mobile calls, as it applies explicitly to all traffic from a subscriber's line identified by a number. ILT defined the technical arrangements in its Decision 00/36/ILT of 23 May 2000, following a broad consultation with operators and in terms which operators regard as satisfactory. However, they complain that the Decision was taken very late. Operators are currently carrying out tests which appear to show that this facility is feasible.

RIGHTS OF WAY

Under the national regulatory framework, rights of way on public land must be granted free of charge.

The Fifth Report identified refusal to grant rights of ways as a major obstacle to market entry. Since then, no progress has been made. The Commission has decided to send Luxembourg a reasoned opinion on this issue. The Fifth Report explained that the authorities responsible for the management of the public domain must obtain au authorisation (from the municipal highways department for areas within municipalities, and from the national highways department (Administration des ponts et chaussées) for areas outside municipalities); in the case of antennae, a further authorisation is required from the Ministry of the Environment and the Ministry of Labour and Employment and, in certain cases, from the forest authorities and/or the Ministry of Agriculture. The lack of rules on the coordination and transparency of the implementation of rights of way constitutes a major barrier to market entry. New entrants in the fixed market encountered serious difficulties in implementing this right or were unable to do so. The division of responsibilities between the public building administration, the Ministry of Transport, the Ministry of the Environment and the municipalities is not clearly defined. However, an inter-ministerial body has been set up to define responsibilities, and this might lead to rights of way being granted in a more coordinated way in future. ILT has taken action to ensure that rights of way are implemented by all authorities involved, but lacks the power to intervene. The incumbent has reported delays in the granting of authorisations of between one and six months. However, no new entrant has yet received an authorisation to lay cable in Luxembourg. The Luxembourg authorities claim that any refusal to grant rights of way is due to the failure of the operator in question to present a valid plan for his network.

DATA PROTECTION

The legislation needed to apply the EU framework with respect to data protection has not been adopted. A bill transposing the general Data Protection Directive has been finalised. The Government is currently discussing the bill, which is expected to be submitted to Parliament at the beginning of October 2000. It will provide the basis for secondary legislation transposing the Directive.

There are major gaps in the protection of privacy. In particular, the legislation in place obliges operators to store traffic data for 10/15 years.

INTERNET

The incumbent operator reportedly has a market share of more than 50%.

The incumbent has made no specific interconnection offer to competitors for Internet access; operators with a voice telephony licence are offered identical conditions for interconnection for all calls, whether they are for voice telephony or Internet access.

Neither the incumbent nor any new entrants currently offer ADSL; the incumbent plans to conduct tests. ILT is committed to setting the condition that new entrants are permitted to launch an ADSL offer simultaneously with the incumbent.

No operator currently offers flat-rate Internet access. However, the incumbent plans to offer a flat-rate at weekends from 1 October 2000. ILT is currently examining the possibility of imposing a complementary interconnection flat-rate for Internet access.

THE NETHERLANDS

OVERVIEW

Since the Fifth Report, competition has continued to increase, especially in the market for mobile telephony. About 57% of the population now has a mobile phone (up from 34% in August 1999), the number of mobile users (approximately 9 million) now exceeding the number of fixed connections. In the past year the market share (based on the number of subscribers) of the largest mobile operator has dropped below the 50% mark (to 47%), and the second operator has lost some market share (now 31%), leaving more than 20% of the market to the three smaller operators, who had just over 10% of the market between them last year. Investment in the telecommunications sector has almost doubled, although the increase in investment by new entrants has focused mainly on the market for mobile telephony. There has been a rapid increase in the number of Internet connections, especially since the introduction of free access in September 1999: 40% of the population now uses the Internet. On the basis of revenue, the incumbent operator has an estimated 70% share of the (fixed) international calls market, 80% of the (fixed) long-distance calls market (down from 90% last year), and 90% of the (fixed) local calls market (down from 99%). The last figure is a sign of increasing competition in the local calls market, where the incumbent operator is historically very strong. The local market is starting to attract more investment, driven by the Internet.

Despite problems concerning interconnection, leased lines capacity, and rights of way for mobile telephony infrastructure, and the lack of a decision regarding the designation of operators with significant market power on the mobile market and on the national market for interconnection, the Fifth Report noted that, overall, market players were positive about the level of competition in the market and about OPTA's regulatory approach. They believed that OPTA had demonstrated its independence, but criticised it for focusing more on short-term than on long-term interests.

Market players say that OPTA's healthy regulatory approach has continued, resulting for example in a steady fall in tariffs. International tariffs are amongst the lowest in Europe, sometimes even lower than the incumbent's tariff for national calls. Fixed-to-mobile tariffs have come down and are now differentiated, and profit margins are falling. OPTA is therefore now investigating the lower boundary of the tariffs (squeeze testing), rather than focusing on the upper boundary. There is a low threshold to enter the market and operators are very positive about this development. There is an increase in self-regulation. There are also problems, for instance with respect to the delivery of leased lines and an alleged price squeeze resulting from the low margins between retail and wholesale tariffs. Operators are also concerned about local authority action which obstructs the roll-out of networks.

NATIONAL REGULATORY AUTHORITY AND APPEALS

Although the objectives pursued by OPTA are clear to market players, some feel that OPTA interprets the powers granted to the NRA by the Telecommunications Act too broadly. All operators agree that the legislation is sometimes too detailed and leaves little room for flexibility: for instance, a few operators pointed out that database-assisted dialling using voice commands (a commercial

application) was not allowed in the 1234 short code because the numbering plan and its explanatory note did not permit a broad interpretation of services "directly supporting the telephone service".

New entrants say that OPTA prefers to leave operators to solve the more complicated (technical) problems through self-regulation. Although they agree with this in principle, in some cases it leads to accusations that OPTA is insufficiently proactive, especially where market players are clearly unable to solve the problem themselves within a reasonable time. In practice, self-regulation has led to a large number of discussion forums and meetings. Some new entrants claim that the incumbent is using these "consultations" and working groups to delay the introduction of certain facilities and conditions. New entrants also have insufficient human resources to conduct such extensive discussions on every topic, although they are now cooperating more with each other. Examples of current discussion topics are carrier pre-selection (CPS), digital subscriber line (xDSL) and collocation. OPTA advises operators to consider carefully before filing a dispute/complaint on any topic still under discussion, as this might delay the application even more or lead to stricter regulation, neither of which is necessarily well received by the market.

OPTA's role is basically to intervene when parties are unable to reach agreement; it is not its policy to interfere in the negotiating process. However, it does take early action in some cases: for example, in the case of CPS, OPTA gave a preliminary opinion on its own initiative, in an attempt to head off potential disputes. It is now preparing a consultative document on collocation, in recognition of the potential problems.

New entrants complain that the regulator is slow, taking longer than necessary to decide on certain issues, or at least longer than in the past. All projects are said to be suffering delays. According to them, OPTA's slowness, commented on by most operators, could be due to the political situation in The Netherlands (discussions on the future of OPTA and its evaluation) resulting in OPTA adopting a cautious approach. OPTA claims that this perception of slowness is unfounded. Market players have disputed all of its original decisions. The process of administrative review in The Netherlands requires the NRA to re-examine all disputed decisions and adopt a second decision, which is then subject to appeal to the courts. These procedures, all set out in national legislation, are time-consuming. All market players are exploiting all legal possibilities to challenge all decisions/determinations by OPTA. Delays are largely due to these challenges and appeals, and do not necessarily reflect inadequate preparation by OPTA. In The Netherlands there is a high standard of legal protection, which all involved perceive to be a good thing, but this inevitably leads to delays.

Most operators find the procedural rules unclear in general, and particularly as they apply in a dispute, and feel that the rules are not fully adhered to in practice. Operators are generally allowed only a limited time to respond to consultations or in a dispute. OPTA, however, will then take disproportionately longer itself to reach some kind of determination. OPTA agrees that in the past procedures might not have been sufficiently transparent, for instance in the case of interconnection disputes, but it claims that this is no longer the case, and that the time taken to resolve interconnection disputes is now well under six months, and has recently speeded up.

Some market players still criticise OPTA for pursuing short-term goals (and thus putting too much emphasis on competition to provide services) instead of long-term goals (promoting infrastructure competition), but this criticism is no longer voiced by a majority of market players.

Working relations between OPTA and the national competition authority (*Nederlandse Mededingings Autoriteit - NMa*) are understood to be good, based on a protocol for handling cases which are subject to parallel powers.

OPTA also has competence for cable issues under the Telecommunications Act, and wants to apply an "ONP approach" to these issues, giving new providers opportunities to use existing cable networks. According to guidelines set in September 1999, in cooperation with the NMa, OPTA will settle disputes regarding conditions set by cable operators for program providers. In the first dispute, OPTA ruled that the cable operator had to make an offer for digital broadcasting, this being cheaper than normal broadcasting, as fewer channels are used.

An evaluation of OPTA is currently under way (the legislation requires an evaluation to be carried out by August 2001). A separate discussion of the future role of OPTA is taking place in the light of the current review of the European regulatory framework.

LICENSING

No problems with the licensing regime in The Netherlands were raised by market players.

At the time of the Fifth Report, the Netherlands Government was planning to issue wireless local loop licences (WLL) before the end of 1999. However, the procedure had to be delayed, and no WLL licences have yet been issued. One reason for the delay is that, following a court decision, the Ministry responsible for telecommunications is examining the claim by Telfort and Energis (formerly EnerTel) that, according to their fixed operator licences issued in 1997, they have preferential rights to a WLL licence. This issue has to be cleared up before a licensing procedure can start. As a result, the frequencies allocated to WLL systems have not been assigned yet. A new starting date for the licensing procedure has not yet been announced, and market players have said that the Government lacks transparency on this issue. The incumbent strongly objects to the Government's intention (on the advice of NMa and OPTA) to partially exclude it from participating in the auction.

The frequencies for the operation of 3G networks were auctioned in July 2000, and licences have been granted to five operators.

INTERCONNECTION

The absence of regulations on a prescribed number of points of interconnection has led to a situation where new entrants can reach all subscribers via a single point of interconnection. This low barrier to market entry, together with the low licensing/authorisation threshold, has led to a large number of operators, but also to capacity problems on KPN's network.

New entrants complain that the forecasting procedure for interconnection capacity requirements is very rigid and inefficient, and that KPN sometimes fails to provide the requested capacity, a problem that has been going on for over a year. OPTA reports that KPN claims that it has now cleared its backlog of interconnection requests, but is increasingly worried that capacity problems will return shortly due to the expected continued increase in Internet traffic, partly as a result of the introduction of flat-rate charging. According to OPTA, the solutions KPN has put in place to solve the interconnection capacity problems are not sufficient to cope with a substantial increase in data traffic. The separate data network set up by KPN, which runs via local exchanges, is not yet being used, as it is has not (yet) been made sufficiently attractive.

In October and November 1999, OPTA launched a consultation on the incumbent's new reference interconnection offer (RIO). However, this RIO did not enter into force on 1 July 2000 (in The Netherlands, the period for interconnection tariffs and the RIO is always July-June, as liberalisation took off on 1 July 1997); it has not been fully approved by OPTA. In a final decision adopted on

28 July, OPTA concluded that KPN's initial offer was liable to seriously hinder competition (because the proposed procedures would not be able to cope with a dynamic market) and increase the shortage of points of interconnection, and required KPN to present a new RIO taking account of 42 points by 1 September. On 5 September KPN published a new RIO on its web site. OPTA will assess whether this offer covers all the observations made in its decision of 28 July. Some new entrants say that extensive discussions in the Forum for Interconnection and Special Access (FIST) have done nothing to speed up the process.

Because OPTA is in the process of changing the interconnection cost-accounting system for terminating access (from an embedded direct costs (EDC) top-down model to a long-run average incremental costs (LRAIC) bottom-up model), the interconnection rates for 2000-2001 had not been set by 1 July 2000. OPTA therefore introduced provisional tariffs, which will remain in force until a new cost-accounting system is in place and a decision on interconnection tariffs can be made on the basis of the new system.

The Fifth Report noted that OPTA had overruled an attempt by the incumbent to apply the principle of reciprocity. KPN had said that if it did not obtain reciprocity, it would reveal the different interconnection rates charged by other operators (who, unlike the incumbent, are not obliged to apply cost orientation). Alternative operators have since stated that the problem is not differentiation, but the fact that the interconnection offer put forward by KPN was unfair, as it offered only to pay the lowest possible termination rate, the local rate. New entrants say that for more than a year KPN has refused to pay the interconnection tariffs of operators who charge more than KPN's cost-oriented local interconnection rate.

The preliminary interconnection charges for the period July 1999 - July 2000 for single transit and double transit interconnection fall within the "best current practice" of the European Commission for 2000.

The situation regarding the designation of operators with significant market power is little changed since the Fifth Report. In October 1999 KPN-Mobile and another mobile operator were designated as having significant market power in the mobile market. However, the other mobile operator successfully appealed against this decision. A new decision from OPTA is expected shortly. Although OPTA announced more than a year ago that it was preparing a decision on the designation of an operator/operators with significant market power on the national market for interconnection, no designation has yet been made. OPTA is currently examining the mobile termination market, with a view to deciding whether or not to designate an operator as having significant market power: a decision is expected before the end of 2000; however, the considerable reduction in the charges for fixed-to-mobile calls reduces the probability that OPTA will designate an SMP operator. Following a decision by OPTA, the retention rate for fixed-to-mobile calls has fallen by 50%.

LOCAL ACCESS

OPTA decided at the end of 1997 to make full local loop unbundling mandatory, and organised a consultation on how this should be implemented. In the course of 1999 and 2000 new entrants and KPN agreed on a timetable for the introduction of the service. OPTA has given a price indication and will be launching a consultation on collocation shortly.

Fully unbundled access became available in June 2000. The gradual roll-out has a target of 200 main distribution frame (MDF) sites by the end of 2000. New entrants say it is difficult to obtain collocation, especially in cities, where KPN is not making many sites available: the incumbent is said to be deliberately limiting the number of collocation sites, and for certain "popular" MDF switches

has proposed a lottery system. Details of a particular collocation site are not given until the site is available for delivery. The incumbent says that physical space is not always available, but that it is examining options such as mobile collocation and virtual collocation. New entrants say that the mere threat of an independent investigation of collocation possibilities has led to the sudden disappearance of certain problems previously reported by the incumbent. Discussions between market players are continuing, and there are also disputes before OPTA on the delivery of collocation and line sharing. New entrants complain that substantial upfront payments for collocation hinder market access for smaller companies.

KPN appealed against the decision to mandate full local loop unbundling, on the grounds that there was no legal base in the legislation which was in force at the time.

KPN launched a retail ADSL product in July 2000. KPN is discussing with interested market players their requests for shared access, but this not yet on offer in The Netherlands.

Licences for wireless local loop (WLL) have not yet been issued, although the Fifth Report indicated that they were to be issued in 2000. The new timetable for the licensing procedure has not yet been set, but no licence will be awarded this year.

The larger CATV operators are now also offering voice telephony services, following the initiatives reported last year. It is estimated that by mid-2000 there were around 200 000 subscribers.

UNIVERSAL SERVICE/CONSUMERS/USERS

Although OPTA deals with some consumer complaints, especially where regulatory intervention might be necessary, as was the case for number portability and carrier pre-selection, consumers can also address their complaints to a separate dispute body (*Geschillencommissie*), with which all market players have to register. It is this body and the companies themselves who are responsible for dealing with complaints, not OPTA or the Ministry. The obligation for KPN (and potentially for other market players) to report annually on complaints has been withdrawn, on the grounds that end users now have a choice and, if not satisfied, can choose another operator.

MOBILE SERVICES, INCLUDING THIRD-GENERATION AND ROAMING

The procedure for the auction of third-generation (3G) mobile telephony licences, which was completed on 24 July 2000, has been the subject of much comment in The Netherlands, particularly in the light of the fact that the number of 3G licences granted (five) was the same as the number of 2G operators on the Dutch market. The Government has chosen not to increase the number of licences or put in place special conditions for newcomers.

Initially the Government decided to issue only four 3G licences, of 2 × 15 + 5 MHz each. Later, in response to a request from market players and other interested parties, it decided to increase the number of licences to five, with some licences having less spectrum (2 × 10 + 5 MHz) than others. Some interested parties asked for up to six smaller licences to be issued, with preferential rights to future spectrum. The Government claimed that it was not technically feasible to issue six licences complying with the recommendations of the UMTS forum (an international industry body). The reservation of future spectrum was rejected on the grounds that it was not a transparent procedure. Reserving one of the five potential licences for a newcomer would have meant excluding one of the existing operators. The Government did not follow OPTA's advice to grant new entrant roaming rights, to ease market entry. Roaming between 2G and 3G will be left to commercial negotiations.

Roaming between the current 2G operators is also left to commercial negotiations: one commercially negotiated national roaming agreement has been in place since May 1999.

All 155 MHz of spectrum has been available since 1 January 2000 in accordance with the relevant ERC decision.

The auction came to an end when one of the six participants withdrew in circumstances which led it to challenge the result of the procedure. In addition to an internal Government investigation, Parliament has asked for an independent investigation.

Currently no mobile virtual network operator (MVNOs) have been registered with OPTA, but some potential MVNOs are said to be talking to the incumbent operator.

TARIFFS

OPTA approves the incumbent's retail tariffs before they are implemented, but new entrants would like to see a longer period between approval by OPTA and implementation (normally two weeks). Changes in the retail tariffs are implemented too soon after publication. Some operators also complain that the process of approval and publication is not sufficiently transparent, and that it is not possible to obtain an injunction before the tariffs enter into force. New entrants also say that it is difficult to discuss actual costs with KPN. Some new entrants claim that tariffs change too frequently, and that many different schemes are introduced at the same time. KPN is of the opinion that there is no longer any need for regulation of retail tariffs, but OPTA does not share this view.

New entrants say that there is a price squeeze, especially for local calls. Some years ago the incumbent extended the area in which its local (retail) tariff applies from the caller's own local area (numbers with the same area code) to that area plus all adjacent areas. As a result, the incumbent now has only two domestic retail tariffs (instead of three), a regional one (local rate) and an interregional one. However, interconnection tariffs are based on a different, unbundled system (based on local, regional and national usage of KPN's network). For a new entrant the interconnection tariff to be paid to KPN to offer a comparable retail service is higher than the regional retail tariff in some regions, making it impossible for new entrants to match the local rates offered by the incumbent without losing money (price squeeze). While OPTA has approved these new retail tariffs, it does recognise that there is a problem, and has announced that it is investigating the price squeeze. A consultation started in October 2000, and OPTA intends to design a formula for assessing possible price squeezes. Several operators have lodged a complaint with OPTA and the NMa about the current price squeeze in relation to the offering of CPS for local calls.

Mobile termination charges are considered to be very high, and OPTA is looking into this. It is said that KPN has reduced its retention rate by 30%.

COST ACCOUNTING

OPTA is in the process of changing the cost accounting system for terminating access from the (top-down) embedded direct costs (EDC) model currently used to a (bottom-up) long-run average incremental costs (LRAIC) model. Over the period mid-1998 - mid-1999, interconnection charges actually increased. OPTA has therefore imposed provisional tariffs for the period July 2000 - July 2001, pending the introduction of a new cost accounting system. The new system is scheduled to be in place by 1 July 2001.

The verification of compliance for interconnection, leased lines and voice telephony, in accordance with the relevant obligations in the European Directives, has been made for the year 1998; verification for 1999 is under way.

LEASED LINES

According to new entrants (national and pan-European operators), the delivery conditions (delivery period and price) of leased lines have deteriorated since the Fifth Report. New entrants say that the worst delivery time problems are encountered with narrowband circuits, for which the incumbent faces little or no competition. In particular, the delivery of 2 Mbit/s digitally structured leased lines suffer from long delays. According to OPTA, there is no deterioration for prices, because KPN's prices have not changed since October 1998.

New entrants consider the behaviour of the incumbent to be seriously anti-competitive, as the prices for leased lines are still very high, especially the last mile, which is the most expensive. The incumbent has set up a special group to examine the problem of leased line delivery times: while it admits there is still scarcity, it claims that maximum attention is being devoted to the problem. The incumbent claims that problems sometimes occur because requesting operators have problems with the delivery of equipment from suppliers. New entrants point out that the incumbent is not penalised if it fails to meet a delivery deadline, whereas new entrants go to the bottom of the list if they miss one.

OPTA is now focusing on this problem, having first dealt with the interconnection capacity problems. It says that KPN is dominant on the market for 2 Mbits/s lines, and that KPN has started investing too late in new technologies. A problem for OPTA is that there is no clear definition of a "reasonable" delivery time. OPTA is talking to KPN to find a solution to this problem. OPTA notes that despite the apparent lack of competition in the leased lines market, few operators have taken advantage of the opportunity to roll out competing network infrastructure. KPN reports on a regular basis to OPTA on a priority delivery list. OPTA says that the delays in delivery clearly affect KPN's own clients as well as the clients of its competitors.

A cost-accounting system has been approved and put in place, but OPTA needs to readdress this issue as the approval period expires in 2000.

NUMBERING

According to new entrants and OPTA, the current support system for carrier pre-selection (CPS), which was introduced after the European introduction date of 1 January 2000, does not work as expected. There are also problems with the administrative procedures. In short, new entrants claim that KPN has made the system too complex, especially for the end user. An operators' forum (FIST) is currently studying these problems, but the knowledge is largely with KPN, and for this reason it will always have an advantage in negotiations with new entrants, who feel that OPTA should intervene. OPTA has fined KPN for a failure of the voice response system, but this has not had the desired result. KPN has indicated that it is doing its utmost to improve the situation, and that fines will not speed up developments that are already proceeding at top speed.

CPS for local calls is available. However, as the trigger for CPS is dialling a zero, there is currently a requirement to dial the local area code to route a call to a (local) number via the pre-selected operator; if the area code is not dialled, the local call will automatically be handled by the incumbent. In addition, the price squeeze referred to above currently makes it unprofitable for new entrants to

handle local calls. When the price squeeze problem is settled, alternative operators will probably fully support the inclusion of CPS for local calls. OPTA has indicated that the price squeeze is under examination, but that it is a very complicated matter to address.

There are two CPS options in The Netherlands, national and international. Calls to mobile are covered.

There are few remaining problems with number portability, which was introduced in April 1999. All operators apply the standards, which were agreed in an operators' forum (FIST). The incumbent and OPTA are currently discussing the costs of number portability. Mobile number portability is available in The Netherlands, and operators would like to see it also in other Member States.

RIGHTS OF WAY

Last year's report mentioned many problems regarding rights of way. As regards infrastructure for fixed telephony, it appears that an increasing number of local authorities now see their powers in this area (on the basis of the Telecommunications Act) primarily as an additional source of revenue. In addition, their knowledge of telecommunications, rights of way, and the related procedures is insufficient. The national association of local authorities and the Ministry are trying to raise awareness, and a national common policy framework for the licensing of (all) antennas is being set up and has high priority. It is expected to be tabled in Parliament by the end of the year.

All operators, especially those installing a mobile network, complain that local authorities are increasingly obstructing the roll-out of networks. Building permits are increasingly required for mobile telephony infrastructure, not just costing money but also delaying the roll-out of the network. Last year a court ruled that local authorities can require a building permit for an antenna, and this ruling was confirmed on appeal. Every antenna, no matter how large or small, now requires a building permit (although not all local authorities have included this in their by-laws yet). The Government is considering what action it should take, but for now the future common national policy framework will take the building permit as a starting point; OPTA regrets that there is currently no consistent antenna policy.

Additional problems are expected with the roll-out of the 3G networks, as this will lead to an increase in the number of antennas, and also with the placing of broadcasting antennas. The Ministry did not address site-sharing as such in the 3G licensing procedure, because there is a general site-sharing obligation in the Telecommunications Act and it expects this to be settled (indirectly) via special access arrangements. OPTA doubts whether the current site-sharing provisions will provide enough opportunities for the roll-out of 3G networks. An additional problem is that the court has ruled that a rooftop cannot be considered as a site, which is what OPTA had said. An appeal is pending.

Last year there was a health scare in The Netherlands regarding the effect of mobile telephony antennas. The National Health Council has issued advice (coming to the tentative conclusion that there are no significant health risks), and the Government is currently preparing a policy response.

DATA PROTECTION

The Data Protection Directive has been partially transposed through the Telecommunications Act (chapter 11) and related secondary legislation, such as the *Regeling nummeridentificatie*. The legislation transposing the Directive is still not in conformity, and some important secondary

legislation, for instance on the length of the period for which the storage of traffic data is allowed for the purpose of subscriber billing and interconnection payments, is still missing. Operators are not sure what it will contain, especially regarding itemised billing or the storage of traffic data, matters which the Telecommunications Act leaves entirely to the secondary legislation. Proposals are expected before the end of the year. The Commission has initiated an infringement proceeding relating to the General Data Protection Directive (95/46/EC).

National provisions are in place to ensure that providers of telecommunications networks and services take the necessary measures to safeguard network security.

Many new entrants are uncertain what they are supposed to do to facilitate the legal tapping of networks, and what costs will be involved.

The Netherlands Data Protection Authority (*Registratiekamer*) monitors the application of the national legislation concerning the processing of personal data. It advises the Government, provides information to the general public, checks on possible breaches of the legislation, approves codes of conduct, and also has investigative powers. Enforcement of the provisions regarding the protection of personal data is left to the responsible Ministers.

INTERNET

Internet penetration has increased significantly over the past year, due to "free" Internet access schemes. According to a study carried out in July 2000, Internet penetration was 40%.

KPN has established a dedicated network to carry Internet/data traffic, thus taking this traffic out of the normal PSTN to solve structural scarcity problems. The data network can be accessed efficiently by using a special numbering range (with the 06760 prefix), which is not yet implemented; trials started in September. This network will operate at the local exchange level, but only in certain parts of the country. Roll-out will start mid-2001, and use of the network will be optional. No agreement has yet been reached on rates. Internet rates are not regulated (and are therefore beyond OPTA's control), whereas normal local rates are regulated (by OPTA). KPN has said that the IP network uses different down-links and therefore normal interconnection rates do not apply. According to a new entrant, KPN refuses to provide an originating model for "06760 Internet dial-up". KPN proposed a model which allows it to retain control of the retail charges. In terms of the number of subscribers, the three ISPs linked to the incumbent have a market share of about 50%.

In May OPTA ruled that a new entrant's request for a flat-rate Internet access call origination (FRIACO) product was reasonable, and required KPN to make an offer within six weeks. KPN has reviewed the traffic forecast and has come to the conclusion that it does not have the network capacity to meet this request, which is expected to lead to an increase in traffic (local exchanges will be overloaded). It has accordingly told OPTA that it can only offer FRIACO following a planned network upgrading scheme. KPN says that it currently offers only a metered product to itself. Response from OPTA to this scheme is imminent.

AUSTRIA

OVERVIEW

While there were still lacunas in transposition at the time of the Fifth Report, the status of transposition has now substantially improved.

On 1 June 2000 an amendment of the Telecommunications Act entered into force, completing the time limits for issuing/modifying a licence, establishing the Administrative Court's jurisdiction for complaints against decisions of the NRA, strengthening the powers of the NRA, and providing the basis for the forthcoming 3G licensing procedure. Secondary legislation, in particular on universal service and electronic signatures, has been adopted.

Further major legislative measures are expected within the next months, concerning in particular a new framework for social tariff schemes, a further revision of the Telecommunications Act, which is the subject of an open consultation until 30 October 2000, and a complete reorganisation of the regulatory authorities, establishing a "Communications Commission" and introducing a new appeal mechanism.

The pace of liberalisation of telecommunications in Austria was already evidenced by various market data at the time of the Fifth Report.

In 1999 the telecommunications market grew by more than 19%. With the number of users increasing by a further 63% within one year, the mobile penetration rate reached 66% by August 2000, which is the second highest penetration rate in the EU. Since May 2000 there have been four mobile operators on the market. The entire population now has the choice of more than five operators providing local, long-distance and international calls. In Vienna, for instance, 26% of users within the industrial sector exclusively and 27% of private users partially used alternative operators in May 2000. The incumbent's share of the voice telephony market, in terms of retail revenues, fell from 97% at the end of 1998 to 85% at the end of 1999. Internet penetration reached 32% in August 2000.

Tariffs continued to fall. Interconnection fees have fallen by an average of about 30%.

A further step of the incumbent's privatisation is planned before the end of 2000.

NATIONAL REGULATORY AUTHORITY AND APPEALS

Since the last report, the Austrian NRA, has continued to adopt decisions on important issues such as new interconnection fees, the introduction of number portability and carrier pre-selection, and the identification of operators with significant market power (SMP). Despite isolated criticisms of its policy, both operators and user groups attest that the NRA, in its present form, enjoys a high degree of credibility. Constitutional Court case law appears to confirm the constitutionality of the NRA's organisation.

The powers of the NRA (in particular with regard to the approval of general terms and conditions and the enforcement of the quality of universal service) and the concentration of tasks (concerning the allocation of frequencies) have again been increased by the latest amendment to the Telecommunications Act or are covered by the pending amendment (e.g. in the field of rights of way).

However, market players continue to question the NRA's ability to enforce its decisions, particularly in the context of measures taken by the Telekom-Control GmbH (TKC) against discrimination by the incumbent against other operators.

New concerns have been expressed by alternative operators about the time taken to settle interconnection disputes (for which the nationally imposed time limit is six to ten weeks), a disproportionate request for data by the NRA, and the lack of proactivity of the Ministry as the highest telecommunications authority (in particular with regard to numbering issues).

Operators are still concerned about complaints against NRA decisions. Although the Administrative Court has explicitly had jurisdiction to deal with such complaints since the latest amendment of the Telecommunications Act entered into force on 1 June 2000, no decision of substance has been taken so far. It remains unclear whether the Court has jurisdiction for the numerous complaints which were already pending at the time of entry into force of the amendment, some since early 1999. Market players therefore widely express concern about a general lack of legal certainty.

LICENSING

Licensing procedures continue to be relatively light and do not constitute a barrier to market entry. The latest amendment of the Telecommunications Act has completed transposition of the time limits relating to the licensing procedure. At 4 weeks, the average time for granting individual licences for public voice telephony and public networks is the second lowest in the European Union.

There were 51 licensees for the provision of public fixed voice telephony and/or public network services by 1 August 2000, 23 of which were actually offering services. No new matters of concern have been reported with regard to licensing.

INTERCONNECTION

Since the last report, the powers of the NRA to request the modification of the reference interconnection offer (RIO) have been strengthened by the latest amendment to the Telecommunications Act.

Although a total of 185 interconnection agreements (fixed-to-fixed: 124; mobile-to-fixed: 54; mobile-to-mobile: 7) were in place at 1 August 2000, operators generally complain about the unwillingness of the incumbent to negotiate interconnection agreements. In their view, without the NRA's intervention there would be no improvements in the interconnection market. The NRA has dealt with about 50 dispute settlement proceedings in 1999; about 40 decisions have been challenged, and the complaints are pending before the Administrative and/or the Constitutional Court.

The NRA has determined that Telekom Austria AG (the incumbent) and Mobilkom Austria AG (the incumbent's mobile subsidiary) have SMP in the interconnection market (both decisions have been notified to the Commission).

On 27 March 2000, the NRA decided, within a dispute settlement, on the fees to be applied for interconnection (including interconnection at the local level) for 2000. Charges have fallen by an average of about 30%, but are still slightly higher than the current benchmarks issued by the Commission on 20 March 2000. For the first time tariffs distinguish between peak and off-peak periods. Operators expressed general satisfaction with this decision of the NRA.

On 31 July 2000 the NRA also fixed, within five dispute settlements, interconnection fees of all four mobile operators, including fees for fixed-to-mobile call termination. As a result, two non-SMP operators are obliged to gradually reduce their fees to an "appropriate" level, which has been fixed at ATS 1.90, i.e. the same level as the cost-oriented fee which Mobilkom, as SMP operator, is obliged to apply. The third non-SMP operator is allowed to charge ATS 2.70 till the end of 2000. These decisions, however, have been challenged before the Courts.

The new RIO of April 2000 appears to take account of the decisions taken by the NRA so far, and the interconnection services now offered by the incumbent appear to be sufficient. It is available on the NRA's web site. However, the NRA rejected the incumbent's application for approval of the RIO for formal reasons. On 17 August 2000 the incumbent communicated new terms for interconnection, and these are still being analysed by the NRA.

No more concerns have been raised about the availability of points of interconnection.

LOCAL ACCESS

Despite a decision of principle on the obligation to provide full unbundled access to the local loop, such access was not available at the time of the Fifth Report. Since then, the NRA has taken decisions in three cases concerning local loop unbundling (LLU), and it launched a public consultation on LLU at the end of July 2000. The incumbent made a new Reference Unbundling Offer (RUO) on 26 June 2000, including xDSL access. According to the incumbent, ten LLU agreements have so far been concluded with network operators and three with Internet service providers (ISPs). Unbundling pilot projects are currently being carried out, and three operators are preparing to offer commercial LLU.

However, operators have expressed concern that the RUO may not be in conformity with the Telecommunications Act. Neither unbundling of parts of the local loop nor shared access is offered by the incumbent. New entrants complain that the incumbent refuses to negotiate with operators unless they have a licence or are registered as an ISP; that the incumbent discriminates between operators with regard to the provision of collocation facilities (in particular rooms for collocation); and that the monthly fee for LLU fixed by the NRA would create a price squeeze for alternative providers. Dispute settlement proceedings are pending.

An auction procedure for spectrum assignment for WLL started early this year. Following the Telecommunications Office's (*Fernmeldebüro*) refusal to allow the incumbent to participate in the auction, and the incumbent's appeal against this decision, the procedure was abandoned in mid-May. Appeals against this decision are still pending. On 7 June 2000 the Administrative Court ruled that the exclusion of the incumbent was unlawful.

Since the entry into force of the latest amendment of the Telecommunications Act on 1 June 2000, the NRA is now responsible for the assignment of frequency for WLL. A public consultation launched by the NRA ended on 3 August 2000. On 15 September 2000 the NRA published the requirements for the assignment procedure. The auction is not expected to resume before January 2001.

Alternative providers are concerned that the incumbent succeeded in delaying the introduction of WLL for such a long time, thus discouraging potentially interested operators, and complain that the national authorities are not going to comply with the eight-month time limit laid down by the Licensing Directive with regard to the auctioning of frequencies for WLL.

According to the NRA, the obligation for legal separation of cable TV and telecommunications networks pursuant to Directive 99/64/EC does not apply to any cable TV operator in Austria. Only one local cable TV operator is currently offering voice telephony.

UNIVERSAL SERVICE/CONSUMERS/USERS

According to the Telecommunications Act, the incumbent is still obliged to provide the universal service; however, the incumbent is not entitled to request compensation unless its share of the voice telephony market falls to 80% or less. The incumbent is concerned about financing the costs of universal service. There are no plans, however, to set up a universal service fund to involve other operators in financing this obligation at the moment, as a request to that effect has not been made by the incumbent operator.

The Fifth Report noted concerns that the NRA had insufficient powers to enforce quality standards. The latest amendment to the Telecommunications Act increased the powers of the NRA, and the Ordinance on Universal Service was modified at the end of June 2000. Since then, no major concerns with regard to quality of service have been raised by consumer organisations.

There is now a common directory of subscribers. Consumers complain about the new tariffs for the telephone directory enquiry service (ATS 15) approved by the NRA on 19 June 2000 and applied by the incumbent since September 2000.

Consumers have also expressed concerns about the lack of a basic level of itemised billing which, according to the New Voice Telephony Directive, must be available at no extra charge to the user. They are also concerned about the incumbent's continuing inability to introduce per-second call charging and its failure to comply with the minimum requirements for contracts laid down in Article 10 of the New Voice Telephony Directive. Since the latest amendment of the Telecommunications Act, the NRA may, on its own initiative, require the alteration of the conditions of user contracts.

Unsolicited commercial electronic mail continues to be prohibited. New entrants are still concerned about the costs of measures for law enforcement purposes, although no secondary legislation has so far been put in place.

MOBILE SERVICES INCLUDING THIRD-GENERATION AND ROAMING

The mobile penetration rate had reached 66% by August 2000. Since May 2000 there have been four mobile operators on the market. According to its own information, the incumbent's mobile subsidiary (Mobilkom Austria) had a 51.5% share of the mobile communications market at the end of June 2000. Mobilkom Austria and max.mobil are notified as having SMP in the market for public mobile telephony. Mobilkom started to provide GPRS in August 2000.

Since the number of users of the incumbent's analogue D-net (currently about 200 000) is still increasing slightly, alternative operators still express concern about the slow phasing-out of the analogue system (which is not expected before the end of 2004).

Remaining regional DCS-1800 frequencies are intended to be auctioned before summer next year. A public mobile radio licence (TETRA) was awarded in February 2000.

The latest amendment of the Telecommunications Act concentrated the assignment of frequency in the hands of the NRA, and provided the basis for the forthcoming 3G licensing procedure. This law envisages a two-stage auction procedure, permitting the auctioning of frequency packages in parallel bidding. In the first stage interested parties have to demonstrate their technical skills and the economic feasibility of the planned service; in the second stage frequencies are assigned (and individual licences granted) to the highest bidders. On 5 June 2000, the NRA decided on the principles for 3G licensing: it is intended to implement an open simultaneous multiple round auction starting with 12 packages of 2x5 MHz, thus allowing for 4 to 6 licences. All IMT-2000 standards are admitted. The licences will be national, and will be valid for 20 years. The NRA published the auction conditions on 7 July; the deadline for bids was 13 September 2000; six operators applied for a 3G licence. Pursuant to the NRA's decision of 25 September 2000, all six operators were admitted to the auction, which is scheduled to start on 2 November 2000.

According to the Telecommunications Act, the assignment of frequencies for 3G mobiles may involve ancillary provisions, in particular obligations, which serve to ensure that the objectives and provisions of the Act and the relevant EC provisions are fulfilled in the best possible way. These include regulations governing cooperation with other service providers, and might be used with a view to permitting transnational roaming in the Community. If an existing 2G mobile operator is also granted a 3G mobile licence, the NRA may impose an obligation of national roaming with other 3G operators which are not in possession of a 2G mobile licence for no longer than 4 years.

TARIFFS

Competition had already led to a significant fall in all kinds of tariffs, with the exception of the incumbent's monthly basic rate, at the time of the Fifth Report. Most tariffs continued to fall; following the NRA's latest interconnection decision, an increase for mobile tariffs was announced, but has not yet been implemented. Residential users' average monthly bill for national PSTN calls fell by 13.9% from 1999 to 2000. Comparative information on all operators' tariff schemes is offered on the NRA's web site.

The NRA has determined that Telekom Austria (for fixed voice telephony) and Mobilkom Austria and max.mobil (for mobile services) are SMP operators, and approved most of the incumbent's tariff schemes for fixed voice telephony services. The latest amendment of the Telecommunications Act reduced the time limit for approval of tariffs by the NRA to eight weeks, thus ensuring greater flexibility.

However, new entrants continue to express concerns about cost orientation and cross-subsidies. In particular, new entrants complain about the incumbent's discount schemes, approved by the NRA in January 1999; the fact that the latest modification of the incumbent's tariffs (on 1 July 2000) was not subject to approval by the NRA; and the tariffs for access to private networks.

COST ACCOUNTING

According to the Telecommunications Act, suppliers of public telecommunications services who have significant market power on the telecommunication market are obliged to operate a cost-accounting system in compliance with ONP Directives that assigns costs and cost elements to all the services and service elements and permits subsequent auditing. With regard to interconnection,

secondary legislation (*Zusammenschaltungsverordnung*) provides for further details and requires forward-looking LRAIC.

The incumbent uses the fully distributed current costs top-down model. A description of the cost-accounting system currently used by the incumbent is available to third parties. However, no verification of its compliance by a competent and independent body has taken place so far.

The Fifth Report stated that a new cost-accounting system had still to be established by the incumbent, and approval by the NRA was expected in 2000. Negotiations between the incumbent and the NRA are continuing. The NRA requests the forward-looking LRAIC bottom-up model, but the incumbent challenges its approach.

The latest amendment of the Telecommunications Act introduced the obligation for the NRA to publish an annual statement of compliance with the regulatory framework by 1 June 2000. However, the NRA has not yet published such a statement, which is envisaged for early 2001. Thus the incumbent's cost-accounting system still lacks transparency.

LEASED LINES

The Fifth Report noted that new entrants' main complaint was that although Datakom was 100% owned by the incumbent and virtually enjoyed SMP on the leased lines market, it was not obliged to apply the principle of cost orientation.

Only Telekom Austria, according to its own information having a 55% share of the market for data communications at the end of June 2000, is notified as an SMP operator on the leased lines market. Although the incumbent's leased lines tariffs have been approved by the NRA (most recently on 3 April 2000), new entrants have again expressed concern that these tariffs are not cost-oriented.

Latest comparative cost data for leased lines indicate that retail rental prices for national leased lines in Austria were below the EU average for 2Mbit/s lines but above the EU average for 64kbit/s lines; retail rental prices for international leased lines were generally higher than the EU average, in particular for lines to the US.

NUMBERING

The numbering plan of December 1997 has still not been implemented.

At the time of the Fifth Report concerns had been raised that the availability of full number portability and carrier pre-selection, due to be introduced by 1 January 2000, might be delayed, although the Austrian authorities asserted that number portability and carrier pre-selection would be implemented on time.

In the meanwhile the NRA has taken three important decisions in this respect, all of them resulting from dispute settlements:

On 9 March 2000 the NRA obliged the incumbent to immediately provide carrier pre-selection for long-distance, international and local calls; however carrier pre-selection for local calls without dialling the regional code does not have to be provided until 31 December 2000. Fifteen operators are currently using carrier pre-selection to provide public voice telephony to residential users.

On 27 March 2000 the NRA obliged the incumbent to provide operator number portability for geographic numbers within two weeks. On 9 May 2000 the NRA finally obliged the incumbent to provide operator number portability for non-geographic numbers; however, numbers which are not in conformity with the numbering plan are not covered by this decision.

RIGHTS OF WAY

At the time of the Fifth Report concerns about ambiguities arising from provisions of both the Telecommunications Act and the Telecommunications Route Law had still not been addressed. The draft revision of the Telecommunications Act, which is at present submitted to public consultation, is intended to clarify the ambiguities by completely integrating the provisions of the Telecommunications Route Law into the Telecommunications Law.

No further concerns have been raised with regard to one-off payments to landlords.

However new entrants are concerned about increasing problems with local authorities (regarding delays for digging permits and digging restrictions) and problems with regard to the establishment of facilities for mobile networks, the population being increasingly afraid of the potential negative physical impact of radiation.

DATA PROTECTION

The provisions of the Telecommunications Data Protection Directive have been substantially transposed by the Telecommunications Act, which also contains specific criminal law sanctions with regard to confidentiality of communications which, in general, is ensured by the constitution and the penal (procedure) code. A revised general Data Protection Act entered into force on 1 January 2000 containing complementary provisions. The draft revision of the Telecommunications Act, which is at present submitted to public consultation, includes provisions intended to ensure full compliance with the new national legislation on data protection and the Telecommunications Data Protection Directive (e.g. further restrictions with regard to persons entitled to process data).

Under these provisions, providers of publicly available telecommunications services must take appropriate measures to safeguard security of their services. In case of a particular risk that confidentiality will be violated, operators must inform the subscribers of this risk and any possible remedies, including the costs involved. Traffic data must not be stored but must be erased or made anonymous by the operator upon termination of the call. If required for billing purposes, the operator may store traffic data up to the end of the period during which the bill may lawfully be challenged or payment may be pursued.

The surveillance authority is the independent Data Protection Commission within the Federal Chancellery. Anybody may complain to this authority about alleged breaches of confidentiality of communications. The Data Protection Commission may investigate and deliver recommendations on how to achieve conformity with the law. Action against providers breaching the users' right of confidentiality may be brought before the ordinary civil courts, where damages can also be claimed.

Consumer organisations have expressed concerns about network security and the lack of transparency in relation to data protection. It remains unclear how long billing data may be stored according to the Telecommunications Act.

INTERNET

There are more than 200 Internet service providers (ISPs). Market penetration for online services reached 40% in April 2000. According to its own information, the incumbent's share of the Internet services market was 26% at the end of June 2000. The incumbent recently set up a new Internet subsidiary ("jet2web") in which it has a 97.5% stake (the remaining 2.5% stake is held by the Austrian Broadcasting Company ORF), to which the affairs of the company Highway 194 have also been transferred.

The incumbent reduced its special flat-rate online tariffs on 1 July 2000, and now provides retail ADSL for users and an ADSL wholesale product for other operators and ISPs.

Alternative providers are concerned that the numbers used by the incumbent for Internet access are not in compliance with the numbering plan and that number portability is therefore not provided for Internet services. They also complain that the incumbent has a virtual monopoly as regards Internet access services.

PORTUGAL

OVERVIEW

In conformity with Commission Decision 97/310/EC of 12 February 1997, Portugal deferred the full liberalisation of telecommunications services until 1 January 2000.

Prior to the date of liberalisation and during this year, the Portuguese authorities have adopted important legislative measures to complete the transposition of the Community telecommunications framework: Decree-Law 474/99 of 8 November 1999, which transposes the New Voice Telephony Directive; Decree-Law 458/99 of 5 November 1999, which lays down the principles for the provision and financing of the universal service; and the provisions governing the granting of licences for wireless local loop and third generation mobile. The market regards all these measures as having had a positive impact on competition, by clarifying market conditions. A major consultation was launched to identify the best means of promoting competition in local access in accordance with the Commission Recommendation on Unbundled Access to the Local Loop. The Portuguese authorities are currently analysing contributions, which had to be submitted by September.

The Portuguese authorities have granted eleven wireless local loop licences in order to increase local access competition; Portugal was among the first EU countries to do so.

The Portuguese authorities have adopted the legislation needed to launch the last stage of the full privatisation of Portugal Telecom, involving the sale of the last 11.11% of the company's capital, which remains in State ownership.

Since liberalisation, the Portuguese authorities have granted 19 voice telephony licences. New operators accounted for 10.4% of long-distance traffic and 15% of international traffic in the first half of 2000. Twenty-eight operators hold a licence to operate a public network. Three licences have been granted for the provision of mobile telephony. The three licensees have access to both GSM and DCS-1800 bands.

The Portuguese telecommunications services market represents some €4.8bn. The contribution of the telecommunications sector to gross national product (GNP) has been estimated at 4.5%.

The entry of new operators in the fixed communications market from 1 January 2000 has led to a fall in prices and the availability of a diversified offer. The average monthly residential bill for national calls has come down by 16% since August 1999, and the average monthly business bill for the same calls by 27%; the average price of an international call (residential and business) has come down by 7%. Three alternative operators are currently providing voice telephony services through direct access.

NATIONAL REGULATORY AUTHORITY AND APPEALS

The Telecommunications Act lays down that the Government is to be assisted in its responsibilities in the field of telecommunications by the Instituto das Comunicações de Portugal (ICP). ICP has some 400 staff. The Portuguese authorities consider that the previously reported links between a number

of ICP staff and Portugal Telecom have never constituted a threat to its independence. The four staff involved are now civil servants, and in any case exercise neither management nor regulatory functions.

In accordance with the provisions of Decree-Laws 283/89, 100/98 and 129/2000, ICP is a financially autonomous body which reports to the Ministro do Equipamento Social (Minister for Social Infrastructure). Article 22 of Decree-Law 129/2000 of 13 July provides that, without prejudice to the powers of the Council of Ministers and the Minister for Finance, the Minister for Social Infrastructure exercises his powers within the framework of the State's holding in various companies, including Portugal Telecom.

According to the Portuguese authorities, the effective separation between the Portuguese regulator and the incumbent (the Ministry of Social Infrastructure is responsible for ICP and is also involved in the appointment of State representatives to the management of Portugal Telecom) is not a problem. The authorities stress in particular that the incumbent's management is appointed by the assembly of shareholders, on the proposal, as regards the State holding of11.11%, of the Minister of Finance in coordination with the Minister of Social Infrastructure, while ICP's management team is appointed by the Council of Ministers on the proposal of the Minister for Social Infrastructure. The Portuguese authorities also stress that ICP is autonomous, and is not required to submit its decisions to the Ministry of Social Infrastructure for ex ante or ex post approval. ICP decisions are subject to appeal only to the courts in accordance with the general appeals provisions of Portuguese law, except in cases of refusal to grant a licence in the context of a public tender, in which case appeal lies with the Minister. Decree-Law No 227-A/2000 of 9 September 2000 provides for the final stage of the privatisation of Portugal Telecom, which will take the form of a public offer for sale, institutional sale (targeted at domestic and foreign financial institutions) and strategic direct sale, and will permit the privatisation of all but 500 of Portugal Telecom's shares, which are to remain in the hands of the Portuguese State. According to ICP, relations with the competition authority (Directorate General for Trade and Competition) are based on the principles of cooperation and mutual assistance, which it is intended to develop further, in particular in relation to universal service tariffs, mergers between licensed entities (where ICP's advice is necessary pursuant to the relevant legislation) and SMP determinations (where the Directorate General for Trade and Competition's advice is necessary pursuant to the relevant legislation).

According to new entrants, the NRA should be much more proactive, particularly as regards dispute settlement procedures. However, ICP points out that no formal cases have been brought on the basis of the relevant legislation, and that it intervenes on a broader basis to promote competition and prevent disputes; in this context it has adopted decisions on fixed to mobile termination rates, access to special services, international outgoing traffic, pre-selection (specification and maximum price) and delays in the provision of 64 kbit/s leased lines.

LICENSING

In accordance with Article 4 of Decree-Law 381-A/97 of 30 December 1997, an individual licence must be obtained to provide public voice telephony services, to set up and operate public telecommunications networks and to provide services using radio frequencies.

The conditions imposed on operators concern, inter alia, network security and integrity; interoperability; efficient use of the radio spectrum; and compliance with the principle of non-discrimination (Decree-Law 381-A/97 together with secondary legislation on networks, services and voice telephony). The licensing system established by these provisions does not appear to the market to constitute a barrier to market entry. No complaints have been received about the time taken to

grant licences. Nineteen operators have so far obtained a licence to provide the fixed telephony service. Twenty-eight licences have been issued to set up and operate public telecommunications networks. Eleven wireless local loop (WLL) licences have been granted to new entrants; Portugal Telecom has not received a licence for this service in the context of the public tender.

Portugal Telecom stresses that the interconnection conditions and the obligations imposed on operators who obtain licences to operate networks and provide voice telephony services are virtually identical: the distinction between the different types of licence is little more than a formality, and does not lead to discriminatory treatment between the operators involved.

The Portuguese authorities have informed the Commission that there is no need for legislation to adapt Portugal Telecom's concession, since its scope has been amended by the relevant measures implementing liberalisation in Portugal. ICP has stressed that the incumbent can continue to use the basic telecommunications network, which belongs to the Portuguese State, in accordance with the concession contract, to ensure also that the universal service is provided. Under Law 91/97, the basic telecommunications network should cover the communications needs of the public and of social and economic activities within the national territory and ensure international connections, bearing in mind the requirements of harmonious and balanced social and economic development. It should also work as a network that supports the transmission of services in general and is open to all telecommunications operators under fair competitive conditions.

INTERCONNECTION

The arrangements for interconnection between public telecommunications networks, the general principles applicable to the national numbering plan, and the powers of ICP as regards interconnection are laid down by Decree-Law 415/98. This Decree-Law also lays down operators' obligations as regards interconnection and the definition and publication of the reference interconnection offer (RIO).

By decision of 16 April 1999, updated on 3 August 2000, ICP notified Portugal Telecom as an organisation with significant market power on the market for interconnection, the leased lines market, and as operator of the fixed telephony service and the fixed telephone network. The Portuguese authorities have determined that TMN (part of the Portugal Telecom group) and Telecel have significant market power in the mobile telephony market, but not in the national interconnection market.

Following a public hearing, interconnection prices for 2000 were set by ICP on 20 September 1999 and the RIO was published in November 1999. According to ICP, the price squeeze problem reported by new entrants concerns the interconnection charge for outgoing international traffic. ICP has concluded that the prices for international traffic in the RIO were too high and must be reduced to reflect cost reductions. The Portuguese authorities have pointed out that interconnection prices have fallen by 37% compared with the RIO for 1999. The regulatory accounts for 1998 have been audited, and the audit for 1999 has begun. The statement of compliance for 1998 has also been prepared. Interconnection prices for 2000 were established in 1999 on the basis of the 1998 accounting system and interconnection prices for 2001 will be established in 2000 on the basis of 1999 data, taking into account changes in productivity and traffic levels, and of a comparative study between Member States. The interconnection prices in the RIO for 2000 are €0.99 for local interconnection, €1.63 for single transit and €2.58 for double transit. These prices (in particular the price for double transit) are above the Commission's benchmark prices.

New entrants consider that the present interconnection structure comprises an excessively large number of points of interconnection (51) for national traffic, which obliges other operators to

reproduce the incumbent's network, thus constituting a barrier to market entry. However, the Portuguese authorities point out that this is a problem arising from the way in which Portugal Telecom's network has evolved, and that in any case some new entrants are satisfied with the arrangements in place. The draft list of minimum elements to be included in the RIO 2001 at any event offers interested parties the possibility of proposing alternatives.

New entrants believe that the RIO for 2000 is incomplete, particularly as regards tariffs for special services (phone cards), interconnection with ISPs, collocation and pre-selection. They stress that, in general, operators had not signed interconnection agreements with Portugal Telecom until ICP intervened on 3 August 2000 to define the conditions which operators must include in their interconnection agreements and to oblige Portugal Telecom to conclude agreements within 30 days.

Until recently the system for fixed-to-mobile calls gave mobile operators the right to set prices, in accordance with the Order ("Despacho") of February 1991. This system was changed on 1 October 2000 pursuant to an ICP Decision, of 23 December 1999, which questioned the ownership of fixed-to-mobile calls. From 1 October 2000 the fixed network operators have the right to set the prices of fixed-to-mobile calls. An ICP Decision of 3 August 2000 imposed a price ceiling on mobile termination, entailing a reduction of around 8% on retail tariffs.

A consultation on the minimum elements to be included in the RIO 2001 has been launched, so that interested parties can say what elements the RIO should include and which elements need to be corrected. ICP's conclusions are being forwarded to operators in October 2000 and published on its web site. Portugal Telecom has announced that it will present its proposal for the RIO 2001 in October 2000, which will provide new entrants with the information they need to adopt their price structures before January 2001.

LOCAL ACCESS

On 10 July 2000 the Portuguese authorities launched a public consultation on competition in the access network with the aim of studying ways of promoting competition.

According to Portugal Telecom, ICP has not adopted technical specifications for local loop unbundling (LLU). The incumbent considers that LLU should be postponed until 2002 because, by providing full network access, it might discourage investment in infrastructure. New entrants have stated that the liberalisation and opening-up of the local loop to competition will not occur until June 2001. ICP points out that the latter date was announced before the Commission's proposal for a Regulation was adopted, and that a Reference Offer will be published from 1 January 2001. New entrants stress that Portugal Telecom controls the only two networks providing access to the final user (cable and PSTN). Portugal Telecom points out that the basic telecommunications network belongs to the Portuguese State, and that its exploitation has been granted to it under the concession contract. In order to foster competition in access to the final user, ICP has granted 11 WLL licences: three narrowband (voice) and eight broadband. There are, furthermore, no restrictions on competition in the cable TV market. The incumbent has not obtained WLL licences in the context of the public tender. The dominant operator has carried out a number of ADSL trials since 1997, and has recently announced a service offering. The Internet initiative launched by Resolution No 110/2000 of the Council of Ministers of 22 August 2000 identifies the accelerated introduction of ADSL services as one of the priorities for the development of the information society. ICP has indicated that Portugal Telecom's offering will be scrutinised carefully to ensure full arrangements, such as collocation, are available to allow competitors to enter the market.

UNIVERSAL SERVICE/CONSUMERS/USERS

Portugal Telecom is responsible for providing the universal service. Article 9 of the Telecommunications Act lays down in general terms the possibility of universal service being financed by telecommunications operators.

Decree-Law No 458/99 of 5 November 1999, which builds on this provision, lays down the principles of the provision and financing of the universal service. It provides for the possibility of setting up a fund, to which operators who provide a public telecommunications network and providers of the fixed and mobile telephone service would have to contribute. The Decree-Law also contains provisions on the calculation of the net cost of the universal service and pricing. The principles for financing the universal service set out in Decree-Law 458/99 are in accordance with a competitive market and lay down a number of rules for the calculation of the net cost of the universal service: the calculation must be based on objective and transparent procedures and criteria; it must take account of certain specific features of peripheral regions; and it must take account of revenues and other tangible and intangible benefits deriving from the provision of the universal service.

Portugal Telecom (PT) estimates the net cost of providing the universal service at €150 million**.** ICP has informed the Commission that it is currently analysing PT's estimate, but will in any case not countenance cost sharing for the period prior to 1 January 2000. The method of calculating the net cost of providing the universal service will be established on the basis of the principles laid down in Decree-Law 458/99.

New entrants add that an effect of the lack of effective control of PT's cost accounting is that PT uses its obligation to provide the universal service to justify high tariffs for leased lines and interconnection. ICP points out that the regulatory audit process is in hand, and that PT's cost accounting system includes separate accounts for interconnection, leased lines and voice telephony, and undue cross-subsidisation between these services is not allowed.

Portugal Telecom has special price schemes for certain categories of consumers (the elderly, unemployed and handicapped, and those living in remote areas).

ICP has signed a cooperation agreement with the Portuguese Consumer Protection Association (DECO) to carry out a series of public surveys of the impact of liberalisation and electronic services on consumers. ICP has also signed similar agreements with the Ministry of Employment (Ministério do Emprego), the National Institute for Statistics (Instituto Nacional de Estatística) and the Science and Technology Observatory (Observatório de Ciência e Tecnologia).

The Instituto do Consumidor (Consumers' Institute), the body responsible for Portuguese consumer protection legislation, has powers of arbitration and mediation, without prejudice to the competences of ICP.

MOBILE SERVICES INCLUDING THIRD GENERATION AND ROAMING

No problems have been raised in connection with the management of the national frequency plan.

GSM and DCS-1800 licences have been granted to each of three operators: TMN (a subsidiary of Portugal Telecom), Telecel and Optimus.

By means of an Order ("Despacho") of the Ministry of Social Infrastructure of 1 August 2000, the Portuguese authorities launched the procedure for the award of four licences for the third-generation

mobile telephone system, covering the national territory, valid for fifteen years and renewable. The Order lays down the conditions for participation in the award procedure. Third-generation mobile licences will be awarded by the end of 2000 through a comparative bidding procedure. Each licensee will be required to pay a fee of approximately €100 million, which takes into account the economic value of the spectrum granted. The deadline for the presentation of bids was 29 September and licences are expected to be granted by end 2000. It is anticipated that third-generation mobile services will be available not later than January 2002.

Two 15 MHz twin bands in the 1920-1980 MHz and 2110-2170 MHz ranges and a single 5 MHz band in the 1900-1920 MHz range are to be awarded for each licence.

The licence conditions include minimum coverage obligations intended to ensure that 20% of the national population is covered in the first year of the licence or at the date the operator begins its activity, whichever is the later, 40% in the third year and 60% in the fifth year, although a more rapid roll-out is expected in practice.

The main criterion (50%) for the evaluation of bids is the projected contribution to the Information Society, with sub-criteria relating to coverage and pricing policy. The second criterion (20%) relating to effective competition includes roaming between third-and second-generation systems (GSM and DCS-1800) in accordance with the principles laid down in Decree-Law 415/98 of 31 December 1998. In principle, roaming must be offered for at least five years. ICP will be responsible for resolving disputes in this area and will also re-examine the roaming conditions two years after the third-generation mobile licences are granted.

The use of frequencies for the third-generation mobile service is in accordance with the ERC Decisions on frequency harmonisation.

TARIFFS

The Directorate-General for Trade and Competition (DGCC), ICP and Portugal Telecom have concluded a price agreement for the voice telephony service. The latest price agreement - which was signed in September 1997, entered into force on 1 January 1998, and runs until 31 December 2000 - requires Portugal Telecom to continue to rebalance its tariffs for the fixed telephony service in accordance with the principle of cost-orientation. ICP has not yet adopted the price system which will replace the price agreements between ICP, DGCC and Portugal Telecom.

New entrants complain of possible distortions of competition and market foreclosure as a result of cross-subsidisation within Portugal Telecom’s tariffs. The Portuguese authorities have stated that the window for Portugal Telecom to rebalance tariffs will be closed by 31.12.2000, although some discrepancies in the tariff structure might remain.

COST ACCOUNTING

The Portuguese authorities have notified the national measures transposing the relevant Articles of the Leased Lines Directive, the Interconnection Directive, and the New Voice Telephony Directive. The Portuguese provisions require operators who have been designated as having significant market power in certain markets to implement an adequate cost accounting system for the relevant price systems. This obligation currently applies to Portugal Telecom.

Portugal Telecom's cost accounting system covers all services directly provided by Portugal Telecom, including interconnection, voice telephony and leased lines.

The regulatory accounts for 1997 were audited by an independent international audit and consultancy firm, and ICP notified the statement of compliance of these accounts with the applicable provisions of Portuguese law to the Commission. The accounts for 1998 have also been audited. Portugal Telecom's cost accounting for 1998 is mainly based on historic costs. New entrants complain that the NRA has failed to define in advance the criteria for the incumbent's cost accounting system. However, ICP points out that the criteria were set in 1995, imposing an obligation on Portugal Telecomto use current costs in a first phase and to move to long-run incremental costs. A description of Portugal Telecom's cost accounting system is available.

LEASED LINES

In its decision of 6 April 2000, ICP defined the offer of a minimum set of leased lines in accordance with the Leased Lines Directives, thus resolving one of the problems arising from the long delay in transposition, which has now been carried out by Decree-Law 290/A/99. New entrants continue to complain about the high prices and long delivery times for leased lines. They consider that the cost accounting system for leased lines is inadequate because it is based only on historical data. ICP points out that the prices for leased lines were reduced by 37% between 1997 and 2000, and are in fact below the EU average for short distance 64 kbit/s and 2 Mbit/s lines. Quality of service is also regulated in Portugal. ICP is concerned about the delivery periods for leased lines, although they compare favourably with European best practice; one case has been presented for arbitration. However, no barriers to entry into this market have existed since 1999, with licences capable of being issued within 10 days, but competition has not yet evolved in any meaningful way.

NUMBERING

On 2 June 1999 ICP fixed the main components of the new national numbering plan, which was introduced in a single operation ("big bang") on 31 October 1999.

New entrants complain about the unavailability of carrier selection for local and regional calls, and consider that indirect access should also be extended to calls to Internet service providers (ISPs). They say that this has a negative impact on their businesses, as customers do not understand why they provide only a partial service. Carrier selection for fixed-to-mobile calls is due from 1 October 2000, and for all calls from 1 January 2001. Carrier selection for ISPs is being studied.

As regards number portability and carrier pre-selection, Articles 31 and 32 of Decree-Law 415/98 transpose Directive 98/61/EC, which sets 1 January 2002 as the date on which Portugal must apply full number portability and carrier pre-selection. However, the Portuguese authorities have stated that they will bring forward the introduction of these services. A public consultation on number portability was launched in February 2000. In accordance with Order (Despacho) 12809/2000, number portability will be available from 1 July 2001 for fixed networks and from January 2002 for mobile networks. The number portability database will be managed by a consortium of ICP, Portugal Telecom and the main representative association of operators. Carrier pre-selection was required to be available from 1 July 2000 (see below).

New entrants consider the introduction of carrier pre-selection (CPS) to be a fundamental part of liberalisation, but Portugal Telecom says that it is not yet technically prepared and that there is a lack of agreement as to how the costs of pre-selection are to be shared out. According to new entrants,

ICP should be much more active in defining the rules for CPS. ICP has issued a specification for carrier pre-selection in cooperation with the operators. The operational aspects are to be dealt with in the context of a code of conduct to be developed by the operators. Autodiallers have provided a temporary solution, enabling the 1 July deadline to be complied with, but Portugal Telecom complains of the low costs for autodiallers (the costs are split 50/50 between Portugal Telecom and the alternative operators).

ICP points out that CPS has been available for international and interurban calls since July 2000, and will be available for all calls from 1 January 2001. Carrier pre-selection for calls from the fixed network in Lisbon and Porto to mobile networks has been brought forward to 1 October and for fixed-to-mobile calls in the rest of the country to 15 October. ICP has fixed the fee for CPS on the basis of international comparisons at PTE 1 600. Portugal Telecom has announced a fee of PTE 1 586.

RIGHTS OF WAY

Decree-Law No 381-A/97 of 30 December 1997 establishes the right of access to public land by operators who have obtained a licence for the establishment and operation of public telecommunications networks. This Decree-Law and Decree-Law 290-A/99 lay down the rules on facility sharing and collocation. These provisions impose arrangements for facility sharing and collocation when it is not possible to build new infrastructure for reasons of environmental protection, cultural heritage, town and country planning, or the conservation of urban and rural landscapes. Decree-Laws 381-A/97 and 151-A/2000 also encourage operators to conclude agreements on infrastructure sharing. ICP can intervene to resolve conflicts between operators. The public tender for the provision of IMT2000/UMTS includes criteria relating to facility sharing.

Infrastructure such as antennas and ducts is subject to the issue of the appropriate licences by the local authorities concerned.

Decree-Law 59/2000 of 19 April 2000 lays down the rules on the installation and use of shared telecommunications infrastructure in buildings. However, new entrants complain of a lack of adequate rules on shared antennas in buildings, which obliges them to conclude individual agreements with each owner.

New entrants complain about the de facto monopoly for the undersea cable, as a consequence of the lack of free access to undersea cables and to backhaul services. According to ICP, Portugal Telecom has adopted measures to address this situation. ICP is monitoring the results.

DATA PROTECTION

The general and telecom-specific Directives were transposed into Portuguese law by Law 67/98 of 26 October 1998 on the protection of personal data and by Law 69/98. Law 69/98 applies to the processing of personal data in the telecommunications sector, and builds on the provisions of Law 67/98 on the protection of personal data.

Law 69/98 guarantees the confidentiality of communications and obliges operators to take appropriate measures to safeguard network security and to inform the subscribers if there is a particular risk of a breach of the security of the network and any possible remedies.

The incumbent says that it has received no complaints relating to data protection. In general, no complaints have been received relating to data trading.

ICP points out that the Portuguese provisions transposing the Telecommunications Data Protection Directive contain all the guarantees provided for in the Directive.

There is an independent body in charge of data protection, the Comissão Nacional de Protecção de Dados (CNPD).

INTERNET

The Portuguese authorities have adopted several measures relating to the information society: in particular Resolution No 94/99 of the Council of Ministers adopted the Guidelines for the national e-commerce initiative. Resolution No 110/2000 of the Council of Ministers of 22 August 2000 launched the "Internet initiative", to be implemented by the Minister for Science and Technology. This initiative sets a number of objectives to be reached in the coming years: an increase in the Internet penetration rate in households, businesses and public administration; the introduction of flat-rate Internet access tariffs; and a greatly increased volume of e-commerce.

Internet access has grown rapidly during the last year. The number of subscribers rose to 474 000 at the end of 1999. Between 1998 and 1999 the number of subscribers grew by 175%. There are now 13 Internet service providers (ISPs). Portugal Telecom handles 79% of Internet traffic, according to data published by ICP for 1999.

FINLAND

OVERVIEW

Finland has a light regulatory regime and the hands-off approach generally followed by the Finnish authorities places greater emphasis on market forces than on detailed regulation to ensure the operation of an effective communications market. However, some new regulatory initiatives have been launched since the 5th Report, notably proposed amendments to the Telecommunications Market Act to provide for shared access to the local loop, collocation, and national roaming between third and second generation mobile networks. Consideration is also being given to revising the legislative framework for communications to reflect the process of convergence and to ensure technological neutrality.

New entrants still argue, however, that the absence of detailed regulation in certain areas, particularly in relation to cost accounting and pricing issues, perpetuates a lack of transparency and accountability on the part of the incumbents and deters market entry, especially in the local market.

The Finnish telecommunications market has continued to show significant growth, with the overall telecommunications market estimated to have grown by 8.7% in terms of revenue over the last year. There are over 100 operators authorised to offer public voice telephony services in Finland, either at a national or a local level, which is a high number in view of the size of the population.

The important role played by mobile networks in this ongoing growth is evidenced by the continuing increase in the mobile penetration rate, which has now passed 70% and remains the highest in the European Union. It can also be seen in the fact that in Finland (alone among EU Member States) the revenues generated by mobile telephony networks already exceed those of the fixed voice telephony network (including Internet dial-up, but excluding switched data networks and leased lines). However, the market for the provision of mobile networks still remains dominated by the incumbent Sonera, whose share of total mobile subscribers (both digital and analogue) is estimated at 63%, with the third largest network operator accounting for only 2% of subscribers.

Although the Finnish market for local fixed telecommunications has historically been segmented, with each area having their own local operator, a process of consolidation is under way, as can be seen from the emergence of Elisa Communications Corporation (formerly the Helsinki Telephone Corporation) as a major national operator, whose interests include nearly 100% ownership of the second largest Finnish mobile operator, Radiolinja.

NATIONAL REGULATORY AUTHORITY AND APPEALS

Following a public consultation on the role of the Telecommunications Administration Centre (TAC) in the first part of the year 2000, it is likely that its role and competences will grow over the coming years, as the process of transferring day-to-day regulatory responsibilities from the Ministry of Transport and Communications (MINTC) to the TAC continues.

Some of the concerns identified in the 5th Report relating to the overlapping powers of the TAC and the Finnish Competition Authority (FCA) continue to subsist. Because of the allocation of legal

responsibilities between the two institutions, operators believe that in some cases they need to apply to both bodies for redress in order to safeguard their interests. This gives rise to additional expense and uncertainty for operators. The possibility of inconsistent decisions by the two authorities also exists (although this has not yet happened in practice). Furthermore, different appeal procedures apply, with decisions of the TAC being appealed to the Lower Administrative Court and then the Supreme Administrative Court, while decisions of the FCA are appealed to the Competition Council and then the Supreme Administrative Court. The Finnish authorities contend, however, that co-operation between the two authorities works well, with consultation taking place on a regular basis.

New entrants also claim that the lengthy appeal procedures contribute to an excessive time frame for the resolution of disputes. They claim that major pricing disputes are taking one and a half years or more to resolve. One example cited is the case concerning the pricing methodology for local loop unbundling, where the complaint was originally raised in November 1997, a decision was made by the TAC in October 1999, an appeal is still pending before the Helsinki Administrative Court, and a further appeal to the Supreme Administrative Court is still possible after that.

New entrants continue to argue that there is insufficient co-ordination between the TAC and the MINTC, particularly as regards the establishment of detailed principles and rules regarding cost orientation and pricing issues. The unwillingness of the MINTC to adopt more detailed regulation in this area is alleged to have contributed to delays and lack of effective enforcement on the part of the TAC in the handling of individual complaints. The Finnish authorities, however, argue strongly in favour of their approach to these issues, which requires operators with significant market power to prove on demand that their prices are cost oriented, but allows them a large measure of freedom in determining the methodology to be used. They argue that to impose a single common methodology on the large number of designated SMP operators in Finland would be impracticable.

The TAC has recently increased its staffing in the dispute resolution area. However, there is likely to be a need for increased resources at the TAC as a result of the forthcoming new legislation governing shared access to the local loop and national roaming. Staff turnover remains a problem, as in other Member States.

Any remaining concerns over the separation of regulatory and ownership functions should be resolved with the expected sale of the Government's remaining 52.9% stake in Sonera Oy. On 21 June 2000 the Finnish Parliament authorised the reduction of the Finnish State's ownership in Sonera to zero.

LICENSING

No new concerns have been raised by operators in relation to the light Finnish licensing regime in general, under which individual licences are required only for provision of services on public mobile networks.

Some concerns have been expressed over the time taken since the original grant of the third generation mobile licences to establish the legal obligations of the licensed operators, particularly in relation to national roaming between second and third generation networks. An amendment to the Telecommunications Market Act that will establish this obligation is currently before the Finnish Parliament (for more detail see "Mobile Services…" below).

Currently the licensing of telecommunications and broadcasting operators both fall within the responsibilities of the MINTC. In the future the converged legislative framework currently under

consideration by the Ministry is likely to subject these different network operators to the same legal principles, as and when it is adopted (though this is not expected before 2002).

INTERCONNECTION

The 5th Report noted the increased importance of interconnection issues as competition has developed. It also identified the lack of transparency and of detailed rules on cost accounting as one of the main problems seen by new entrants.

The environment for interconnection in Finland differs from that in other Member States because of the practice by which charges have been traditionally treated as end-user prices (charged to the user) rather than charged to the operator seeking interconnection.

Some new entrants argue that the absence of an obligation for SMP mobile operators to offer fixed operators an interconnection tariff for call termination on mobile networks (as opposed to charging an end-user price) is one of the major barriers to competition, particularly in view of the high mobile penetration rate.

The TAC is currently studying the level of mobile call termination charges, with a view to establishing the degree of cost orientation achieved, following a complaint concerning the termination charges of a mobile operator. Sonera Oy, the largest Finnish mobile network operator, and Radiolinja Oy, the second largest operator, have been designated, in accordance with the Interconnection Directive, as having significant market power on the national market for interconnection.

New entrants argue that the high price charged for call origination on the fixed network has hindered the introduction by independent ISPs of indirect access via transit operators and has limited the development of competition for dial-up Internet traffic. The TAC is currently investigating the access and termination charges on the fixed network and a decision is expected in autumn 2000.

The Ministry Decision of February 1999 that end-user prices for communications originating on an operator's local telecommunications network and directed to another telecommunications area should not exceed 60% of the end-user price for a local call of the equivalent duration expired on 30 June 2000. The level of these charges has not changed significantly, however, since the expiry of the restriction.

While the TAC has only one formal complaint on interconnection currently pending before it, a number of complaints relating to interconnection issues are outstanding before the Finnish Competition Authority (FCA), notably in relation to the pricing of data (Internet) access, which falls outside the scope of the Telecommunications Market Act. On 2 May 2000 the FCA ruled that it was an abuse of the Helsinki Telephone Corporation's (HTC's) dominant position to refuse local interconnection to competitive ISPs and required HTC to provide a statement of interconnection terms by 31 August 2000. Subsequent to this ruling, a further complaint has been made to the FCA in relation to the terms for local interconnection.

There are more than 180 interconnection agreements currently in place in Finland. Each SMP operator (including each of the 46 local fixed network operators which are members of the Finnet Group) maintains its own reference interconnection offer (RIO). These are updated on an ongoing basis as terms and charges develop, rather than being subject to a regular annual review.

LOCAL ACCESS

The 5th Report referred to the fact that full unbundling of the local loop (LLU) has been available as a matter of law since June 1997, but that a number of disputes over pricing were pending before the TAC and the Competition Authority.

No precise statistics are available as to the extent of LLU at the present time. It would appear that some thousands of subscribers have made use of the facility to date, but that these are mainly large corporate users with high data transmission requirements and situated in the main cities.

New entrants continue to argue that the price of leasing the local loop is one of the main factors impeding the development of competition in the local telecommunications market. A decision of the TAC in October 1999 on the Helsinki Telephone Corporation's (HTC's) prices for the lease of its local loop and their cost orientation was appealed to the Helsinki Administrative Court and a definitive decision is still pending. The Competition Authority also found in December 1999 that HTC's pricing for local loop unbundling and its tying of services had prevented competitors from entering the market and constituted an abuse. This decision is also subject to appeal. The final determination of this issue is therefore likely to be further delayed for some months, particularly given the possibility that the cases may be appealed to the Supreme Administrative Court.

There is currently no legal requirement for shared access to the local loop. However, proposed amendments to the Telecommunications Market Act currently before the Finnish Parliament will provide for the regulation of shared access and the right to collocation. It is anticipated that this new legislation will come into force at the beginning of 2001. The proposals provide that the price for shared access should not normally be more than 50% of the price for full LLU (subject to appeal on a case-by-case basis).

Some operators have expressed concern that the right under the proposed law for the incumbent to refuse access on the grounds that it requires the transmission capacity for its own use or its reasonable future needs may hinder the development of this market. However, this is a matter that will be subject to the ongoing supervision of the TAC.

There is no specific legislation mandating bitstream access in Finland. However, the general obligation of non-discrimination should apply as between a notified operator's own downstream arm and competing operators.

New entrants argued that competition in the local telecommunications market in Finland is still not effective, as a result of a combination of a lack of local level interconnection, the lack of effective local loop unbundling, the high price of number portability and the lack of carrier pre-selection for local calls (see Numbering section for more details).

The following frequency bands have been designated for wireless local loops (WLL): 3,410-3,600 MHz; 10,150-10,300 MHz / 10,500-10,650 MHz; 24.50-26.50 GHz. The two lowest frequency bands are for WLL applications only, while traditional point-to-point fixed radio links can also be deployed in the highest frequency band.

Licences for the use of frequencies for fixed access networks are granted in order of arrival of applications. Each licence is granted for an initial period of six years. Operations for which the licence was granted have to be initiated within one year from assignment of the frequency. To date 14 WLL licences have been granted on a local or city wide basis. Operators' activities in this area are however still at an early, largely experimental stage. Some ISPs offer their customers WLL services by means of common frequencies not subject to licence.

UNIVERSAL SERVICE/CONSUMER/USERS

There is no universal service funding mechanism currently in Finland and universal service provision is covered by the service obligations of telecommunications operators under the general law.

Universal service issues are likely to become the subject of greater debate in Finland as a result of the anticipated full privatisation of Sonera Oy. There have been some calls in the Finnish Parliament for universal service to be guaranteed by law and to include broadband access. Official Government policy remains that there should be no state funding for universal service as such, and favours the provision of assistance where necessary to end-users (e.g. schools, universities, libraries etc.) rather than to the operators themselves. In view of the absence of a universal service funding mechanism, no exercise has been carried out to calculate or estimate the net cost of providing universal service.

Consumer price regulation is not applied by the authorities in Finland at the moment. However, according to the Telecommunications Market Act retail prices for local voice telephony services provided by SMP operators have to be cost oriented (see "Cost Accounting" below). The consumer ombudsman has general responsibility for monitoring end-user prices and dealing with complaints, but has no direct powers over tariff issues, which fall within the competence of the TAC.

MOBILE SERVICES INCLUDING THIRD GENERATION AND ROAMING

As noted in the 5th Report, Finland was the first country to issue third generation (3G) licences (March 1999), by means of a beauty contest licensing procedure, with spectrum fees limited to covering administrative costs.

The licence conditions provide for the launch of 3G services by 1 January 2002, in accordance with the UMTS Decision. The full 155 MHz of spectrum to be allocated to 3G services in accordance with ERC Decision 00/01 is not yet free, but is planned to be progressively cleared as necessary in accordance with the envisaged timetable.

The proposed amendments to the Telecommunications Market Act currently before Parliament will provide for mandatory national roaming between 3G and 2G networks, subject to certain conditions. For example, mandatory roaming will arise only after 6 months of unsuccessful commercial negotiations and once the network of the 3G operator requesting roaming covers at least 20% of the inhabitants of its own licence area. Mandatory roaming will normally last for 8 years, except that the statutory obligation to permit roaming will end two years after the date the relevant operator's own 3G network covers 80% of its licence area. In sparsely populated areas (less than 5 inhabitants/square Km) the statutory roaming obligation will be unlimited in time.

There is no statutory obligation of national roaming between GSM 900 and DCS 1800 networks in Finland. However, following a complaint to the Competition Authority by Telia Finland, the third mobile network operator, regarding the alleged refusal of Sonera and Radiolinja to grant national roaming on reasonable terms, and a preliminary finding in September 1999 upholding that complaint, a solution was found which involved allowing Telia access to Radiolinja's GSM 900 network on the basis of a service provider agreement. A service provider arrangement has also been entered into between RSL COM Finland Oy and Sonera, governing access to the latter's mobile network.

Although no mobile virtual network operators (MVNOs) are currently active on the Finnish market, the Finnish authorities have supported this model of mobile service provision in the past, which they consider falls within the scope of the Finnish legislation governing the rights of service providers.

On 27 January 2000 the Ministry granted a third national GSM 900 licence to Suomen 2G Oy, a consortium of local fixed network operators (excluding HTC and its associated companies) which had also been granted one of the four 3G licences. Suomen 2G Oy was originally required to begin commercial operations by 1 September 2000, but this date has been put back to 1 February 2001.

The phasing out of NMT 900 analogue technology is due to be completed by the end of 2000. At the end of March 2000 there were some 94,000 remaining NMT 900 analogue subscribers.

TARIFFS

Tariff rebalancing is less of an issue in Finland than in some other Member States, owing to the fact that the market has historically been segmented between local network operators and long-distance and international operators. The Finnish authorities consider that the process of tariff rebalancing has been completed.

However, notwithstanding the above, the cost orientation of tariffs in general remains to be fully demonstrated, given the lack of transparency in the cost accounting systems of the SMP operators and the lack of detailed common rules on cost orientation.

The Ministry of Transport and Communications produced a report on 5 May 2000 on "Price Level of Finnish Telecommunications Charges 1999", presenting the situation at 1 January 2000. Its main findings were that the prices of voice communications services had developed on average as follows during 1999: GSM calls –6.8%; local services +4.7%; long-distance calls +0.6%; international calls –9.5%, resulting in an overall average reduction in prices of 3.3% on a weighted basis (by reference to turnover). It also found that as a result of the introduction of accounting separation between networks and services, connection fees had decreased while monthly fees had increased.

The price increase in local services is partly due to the fact that certain price benefits traditionally given by Finnet operators to their shareholders have now been abolished. The result is an apparent increase in the price of local services.

The increase in long-distance prices reflects the incorporation of termination charges into long-distance charges as from 1 May 1999. The significant decrease seen in the prices for international calls is partly due to competitive pressure from the activities of ISPs, including the provision of voice over IP.

There is no price-cap mechanism in operation in Finland.

COST ACCOUNTING

The concerns reported in the 5th Report regarding a lack of transparency and regulatory scrutiny of SMP operators' cost accounting systems remain. While descriptions of the cost accounting systems adopted by SMP operators were approved in February 1998 and are available for inspection by all telecommunications companies, these descriptions are not detailed and appear not to have been updated since then.

Under the Finnish legislation SMP operators are free to determine for themselves the accounting methodology to be adopted. The LRAIC cost accounting system is not being used systematically and many local network operators with significant market power are still using historic cost methods.

The specific cost orientation requirements of Article 10 of the Leased Lines Directive and Article 17 of the New Voice Telephony Directive are not applied by national legislation as regards the activities of SMP operators in the leased lines market and the markets for international and long-distance voice telephony respectively, on the grounds that effective competition exists on those markets. Consequently, the obligation on SMP operators to comply with the principle of cost orientation when setting their tariffs only applies to end-user tariffs for local telecommunications services provided via fixed public networks of less that 2 Mb/s, to the unbundled local loop and to interconnection charges.

It would also appear that no systematic independent verification of compliance with the cost accounting systems is conducted and that no annual certificate concerning compliance has been published. The Finnish authorities argue that they rely instead on the obligations of SMP operators to provide accounting information and demonstrate the cost-orientation of their tariffs on request, as well as on the requirements in the Telecommunications Market Act (in line with Commission Recommendation 98/322) for SMP operators to maintain separate accounts for different business areas, under which they disaggregate their operating costs, capital employed and revenues into at least "core network", "local access network", "retail network" and "other activities". These separate accounts are sent to the Ministry of Transport and Communications each year.

LEASED LINES

Latest comparative data indicate that national leased line tariffs remain low by comparative EU standards.

Finnish telecommunications legislation does not impose an obligation of cost orientation on operators with significant market power as regards the provision of leased lines, on the grounds that effective competition already exists in this market (c.f. Article 10(4) of the Leased Lines Directive) – see section on Cost Accounting above.

NUMBERING

Prices for carrier pre-selection are set by the originating operators themselves, subject to a general obligation of cost-orientation. However, new entrants argue that regulators have been reluctant to intervene in this area to verify compliance with the cost orientation principle.

New entrants continue to argue that the absence of carrier pre-selection for local calls and for calls to mobile is restricting competition in the two largest segments of the market, local calls and mobile calls, and thereby restricting the general development of competition in Finnish telecommunications. The local incumbent operators contend, on the other hand, that tariffs for local calls are already cost oriented and that there is therefore no incentive for new entry into this segment of the market. They also argue that implementation of carrier pre-selection for local calls would require costly investment in updating the network.

Call by call selection and carrier pre-selection is also available for international mobile calls, but without any significant take-up of this facility.

The take-up of number portability of geographical numbers within a numbering area remains very low, due to the costs involved, with only about 1,500 geographical numbers ported between operators at 1 January 2000, representing about 20 (large) customers. Demand for nation-wide number portability of non-geographical subscriber numbers is expected to grow rapidly over the

coming year, although it is currently still at a low level. Number portability of non-geographical service numbers (freephone and premium rate) was introduced on 1 January 2000 but is still at a low level.

New entrants argue that the absence of conditions for effective number portability remains one of the principle barriers to competition. Incumbents, on the other hand, argue that the technology required for number portability is expensive. Operators have also suggested that the TAC has not been as active as it could have been in investigating the cost orientation of number portability. However, the cost-orientation of number portability charges is currently being investigated by the TAC.

RIGHTS OF WAY

No major problems with rights of way in Finland have been identified. Operators have indicated that previous concerns regarding non-discriminatory access to facilities within the control of local municipalities no longer exist.

However, although in principle under Finnish telecommunications law digging rights should be granted free of charge, operators have expressed some concerns regarding certain claims for compensation made by municipalities and other state bodies in relation to digging in public roads, following an amendment to the construction law in 1999.

Co-operation on mast sharing is reported to function well in practice.

DATA PROTECTION

Directive 97/66/EC concerning the processing of personal data and the protection of privacy in the telecommunications sector has been implemented in Finland by amendments to the Telecommunications Market Act, by the Act on the Protection of Privacy and Data Security in Telecommunications (565/1999) and by the TAC Regulations on the Information Security of Telecommunications Operators and on the Physical Protection of Premises and Networks of Telecommunications Operators (47/1999, 48/1999 and 49/1999). These contain, *inter alia*, detailed requirements on telecommunications operators regarding the maintenance of network and data security.

In June 2000 the TAC adopted a new revised regulation (THK 35 E/2000 M) on barring categories in telecommunications, containing a new section concerning barring categories for SMS and WAP services.

A Data Protection Ombudsman exists, whose role is to supervise the application of the data protection legislation in Finland, and co-operation takes place between the Ombudsman and the TAC on data protection issues in the telecommunications area, for which the TAC is primarily responsible.

Finnish legislation provides for traffic data for billing purposes to be stored for a minimum of 3 months after the maturity date of the phone bill and for a maximum period of 3 years after the bill has been paid in full. No particular problems have been identified in relation to network security or confidentiality of traffic data.

INTERNET

According to "Telecommunications Statistics 2000", a report prepared by the Ministry of Transport and Communications, Finland had approximately 121 Internet-connected computers per thousand inhabitants at the end of 1999, up from 107 a year earlier. According to the Statistics, the turnover of Internet operations grew by 19 per cent in a year. It is estimated that at May 2000 approximately 33% of the Finnish population were Internet users (that is accessing the web at least once a week).

The incumbent operator Sonera provides ISP services directly and has a market share of approximately 53%, with at least 50 ISPs offering services on a local or regional basis and some 10 or more offering their services nation-wide.

In May 2000 the Competition Authority found, following complaints by ISPs, that HTC was guilty of abusing its dominant position when it did not offer other ISPs interconnection at local exchanges. ISPs have the right to interconnection at the points of their choice, subject to reasonable, transparent and non-discriminatory terms. The Authority required HTC to provide it with a statement of its interconnection terms by 31 August 2000. HTC has given this statement and the Authority is investigating the issue further.

On the other hand, the Competition Authority found that HTC's system of discounted charges for IP calls using a single operator's network was not restrictive of competition. HTC had introduced a special discounted rate in June 1999, at a price 20% lower than ordinary local calls, for Internet connections using a single operator network.

Prices for ADSL connections are expected to decrease as the roll-out of these services continues and as a result of competitive pressures from cable TV and local wireless access operators.

The TAC issues regulations governing the administration of domain names in Finland. A new TAC regulation on domain names entered into force in the middle of June 2000. Under this regulation registration of Finnish domain names, in other words domain names under the root ".fi", has been made easier and faster than before. At the same time applicants' opportunities to obtain Finnish domain names have been expanded and the regulations on granting domain names to companies have been clarified.

The Ministry of Transport and Communications is preparing a new law on domain names. The new law aims for example to define on what grounds a domain name can be granted to a private person. The Government proposal is expected to be adopted by the Finnish Parliament in 2001.

SWEDEN

OVERVIEW

In 1999/2000 PTS proposed amendments to the Telecommunications Act introducing an obligation to provide unbundled access to the local loop; the proposal is still under discussion, as it is deemed incompatible with the Constitution. However, the incumbent already offers unbundled access. In order to enhance competition in the mobile market, PTS also proposed legislative amendments introducing an obligation for mobile network operators to provide access to their mobile network capacity on market terms if there is spare capacity, which entered into force in 2000. In addition, PTS has adopted decisions regarding the incumbent's rates for the termination of calls on its mobile networks during 1999 and 2000 (whereby it was forced to reduce its mobile interconnection charges to SEK 1.13/minute on average, which is considered by PTS to be a cost-oriented interconnection charge). PTS also proposed an amendment to the Act regarding national roaming, whereby certain mobile operators are obliged to give access to their network to a new mobile operator with a network licence, where this operator does not have coverage, which entered into force in 2000. A Government Bill introduced in spring 2000 proposes to construct a fibre broadband network capable of reaching every Swedish municipal center, to be partly financed by the State. Government support will also be provided to promote local/regional broadband infrastructure and access to broadband networks in rural areas.

Competition on the fixed telephony market has developed since the introduction of carrier pre-selection (CPS) in September 1999, with several new players entering the market and end-user tariffs falling. The average monthly bill for national voice telephony (residential users) decreased by 2.1% in 1999/2000, and the charge for an average international call fell by 54%. A total of 117 operators are now authorised to provide voice telephony, and 22 use CPS. The incumbent's market share is still very high for local calls (93% at the end of 1999/beginning of 2000), and relatively high for long-distance calls (76%) and international calls (62%). Mobile penetration increased further, to 66% in August 2000. The incumbent's share of the GSM market fell to 50% by end 1999/beginning of 2000. Internet usage has increased, and more than 50% of Swedish inhabitants used the Internet (at work or at home) in the first months of 2000;well above the EU average of 30%.

NATIONAL REGULATORY AUTHORITY AND APPEALS

As described in the Fifth Report, the national regulatory authority (*Post- och Telestyrelsen* - PTS) is a government agency reporting to the Ministry of Industry, Employment and Communications. It has a staff of 175, and is financed by frequency and licence fees. The Government appoints the Director General (for renewable six-year terms) and the Board.

The fact that PTS is governed by a board whose members include politicians appointed by the Government may make it susceptible to Governmental influence. However, on the whole, PTS appears to be sufficiently autonomous. As noted in the Fifth Report, the Ministry is responsible for the State holding in the incumbent - which, following its flotation in June 2000, has been reduced to

70% of the voting rights – but it is not directly involved in the incumbent's management. The Ministry is also responsible for regulatory affairs, although different Ministers perform the two tasks. The independence of all State authorities – including PTS - is safeguarded by the Swedish Constitution, which prohibits any interference by Ministries in the day-to-day activities of the authorities. In addition, the Government's influence on the activities of PTS or any other authorities is brought to bear collectively by means of primary and secondary legislation. In other words, no single Ministry is in a position to influence the work and agenda of PTS.

In the past, some new entrants have perceived PTS to be both inactive and slow to take decisions, even though it has all the requisite powers under the EU Directives. PTS refutes the allegations regarding lack of pro-activity, citing examples of recent initiatives taken. In September 1999 it proposed amendments to the Telecommunications Act with regard to local loop unbundling. In March 1999 it proposed legislative amendments with regard to the provision of network capacity in mobile networks. In addition, it has adopted decisions regarding Telia's rates for the termination of calls on its mobile networks during 1999 and 2000.

Some new entrants are still concerned that PTS is at once slow and inactive for certain important matters (such as dealing with interconnection disputes and certain complaints) and, in other instances, too quick in making decisions and proposing legislation. They claim that PTS's legislative proposals and actions are not always based on a proper assessment of the facts; that often the industry has not been properly consulted, if at all, before legislative proposals are made; and that the consequences of legislative proposals are not always assessed before they are made. The legislation on compulsory access for service providers to mobile networks is an example of legislation which new entrants consider to have been proposed with undue haste before the facts and consequences had been properly assessed. PTS acknowledges that its actions are sometimes perceived by some to be too hasty and by some to be too slow. However, it regards its mission to be the promotion and achievement of effective competition. Current examples of proposals in this direction are the ones pertaining to local loop unbundling, remuneration in respect of number portability, mandatory provision of network capacity in mobile networks, and roaming. Some of these proposals have been enacted, but only following a consultation procedure.

As regards the perceived slowness of PTS in making decisions, there are examples of PTS failing to respect the six-month deadline for resolving interconnection disputes. According to some new entrants, every delay in resolving interconnection disputes is important, since even a one- or two-month delay has financial consequences. PTS maintains that one reason for the delays is that interconnection disputes are often complex, that there are often many disputes related to the same issue, and that therefore one dispute cannot always be solved alone without also solving the others. To ensure transparency PTS is obliged to communicate all facts of the case to the parties. This legal obligation is time-consuming.

Some new entrants are also concerned about staff turnover at PTS, and PTS agrees that staff retention could be better, with many leaving to work for the telecommunications industry. PTS has recently launched a skills development program for new staff to alleviate this problem.

Operators have in the past criticised PTS for failing to set proper guidelines and to intervene in the implementation of carrier pre-selection (CPS), resulting in a lack of clear rules right up to the day when CPS entered into force. PTS has admitted that it should have given more detailed guidance. An independent study criticised the way in which CPS was implemented, saying that PTS should have been more active in the years leading up to the introduction of CPS, so that the industry would have known what rules and guidelines to follow. The study also mentioned that some of the problems were exacerbated by the fact that legislation regarding CPS only entered into force in July 2000 (two months before implementation), which limited the scope for PTS to act. Some operators say that

PTS was proactive in the final stages of the reform, mediating and adopting secondary legislation relating to CPS, and that the problems have now been settled. The end result was positive, with 40% of households having chosen an operator (half of them chose the incumbent) in November 1999, a few months after the reform.

According to secondary legislation, PTS must cooperate with the Consumer and Competition Authorities on consumer affairs and competition matters, and initiate a reciprocal and regular exchange of information. Most new entrants claim that the Competition Authority is fairly knowledgeable but very slow to make decisions, and many new entrants therefore hesitate to lodge complaints with it.

LICENSING

The Fifth report concluded that Sweden's licensing scheme is very light, with priority given to general authorisations (declarations), individual licences being required only in certain specific cases. No concerns have been expressed about Sweden's licensing scheme.

The Fifth Report noted that licence fees, which are reviewed annually, have decreased in the last few years (down from 1.52% of turnover in 1994), and licence fees are still not seen as a deterrent to market entry. However, some operators have expressed concern about the unfairness of the current situation in which relatively few operators hold licences and pay licence fees based on turnover, whereas an increasing number of operators only declare (notify) their activities and therefore pay only a small flat-rate fee. These operators consider that declared operators should also pay a fee based on turnover.

Some operators have in the past mentioned the uncertainty created by the fact that if their businesses grow, the notification requirement to which they are subject may, without their knowledge, transmute into the requirement for an individual licence. However, new entrants no longer perceive any uncertainty as to the licensing requirement: this may be because they have become more aware of the possibility, which has existed for several years, of applying for an advance ruling as to whether a notification is sufficient or a licence is needed. In addition to the advance ruling, PTS uses its annual inspection to establish whether an operator's business has reached the size where a licence becomes necessary.

The licence conditions imposed are still relatively few, and they are listed both in the Telecommunications Act and in each individual licence (itself a public document). No operator has expressed concerns about the licence conditions.

Sweden has decided to award four licences for third-generation mobile telephony through a beauty contest in November 2000.

INTERCONNECTION

The Reference Interconnection Offer (RIO) has been published, and was last updated on 1 July 2000.

Many operators still consider that, given the incumbent's dominance, PTS does not intervene sufficiently in interconnection negotiations and interconnection disputes, despite having the requisite powers under EC law. This, it is suggested, makes it difficult for new entrants to conclude interconnection agreements with the incumbent on reasonable terms. Many new entrants (some of whom entered the market as long ago as 1993) have been negotiating interconnection with the

incumbent for several years, but most have concluded only interim interconnection agreements, with certain matters still outstanding. This problem appears to be worsening, with many operators currently more concerned than before. However, also PTS is concerned that so few new entrants have concluded final interconnection agreements, and that interconnection negotiations are so protracted. PTS tries to facilitate the negotiations, and often becomes directly involved at some stage. Increasingly PTS determines the conditions which are to prevail between disputing parties.

Some new entrants still criticise the incumbent for altering the preconditions for certain favourable interconnection rates, thereby forcing new entrants to undertake substantial investment, as well as creating uncertainty (by periodically varying the number of interconnection points to which new entrants are required to interconnect to get the lower rate). In this respect PTS is still considered by some new entrants to have failed to intervene actively.

A number of disputes concerning the incumbent's interconnection charges have been brought before PTS and the Competition Authority in the past few years, although some new entrants maintain that it is pointless to make complaints to the latter since the process is so slow and the authority does not always have the necessary specific knowledge. For example, in 1995 a new entrant complained to the Competition Authority that the incumbent's interconnection charges were so unreasonably high (higher than the end-user tariffs) that it could not compete on national calls. After finding that the incumbent was charging different rates for the same service, the Competition Authority made two interim decisions prohibiting it from demanding the disputed interconnection charges. The incumbent's interconnection charges were lowered in November 1998, and the case was therefore closed in 1999.

As the incumbent has significant market power (SMP) on the Swedish interconnection market, all its interconnection charges should be cost-oriented (including calls to mobile). Many new entrants are still concerned at the lack of transparency of the incumbent's interconnection charges, and continue to call for it to publish its cost allocation (allowing scrutiny as to whether interconnection charges are based on costs, or whether cross-subsidisation occurs). PTS maintains that it obtains copies of all interconnection agreements to which the incumbent is a party, and compares them and the RIO with the relevant cost accounting information, inter alia to verify that interconnection charges are cost-oriented.

Following an investigation of the incumbent's costs, in May 1999 PTS asked it to lower its average mobile interconnection charges by around 20% from 15 June 1999 (the interconnection charges had been unchanged for several years). As a result, both the incumbent and a new entrant lowered the retail prices for calls to mobiles by 20%. After further examination of the cost-accounting information, in May 2000 PTS required the incumbent to lower the mobile interconnection charges further from 1 July 2000 (down to SEK 1.13/minute on average, which PTS considers to be a cost-oriented interconnection charge). The incumbent has appealed against this decision, and the court case is still pending.

There were a number of disputes between operators with regard to tromboning in 1999, and PTS has mediated on a number of occasions. In October 1999 PTS made a Statement on the tromboning of calls to mobile numbers via foreign networks. According to PTS, tromboning does not infringe the Act, and mobile operators should demand payment from the last operator that routes traffic into their networks, and not from the operator which set up the call.

In August 2000 PTS made several Decisions on the principles for compensation between operators for calls to mobile networks, and on the level of compensation for calls to the mobile network of a new entrant. PTS decided that the operator that hands over the call to the terminating operator should pay the terminating operator, irrespective of where the call originated and how it has been

routed. Compensation for calls to the incumbent's mobile network should be cost-oriented, since it has significant market power (SMP) on the national market for interconnection. Calls to the new entrant's network do not have to follow the rules on cost orientation, since it does not have SMP, and market prices apply instead. PTS does not set the market price, but assesses whether the level of compensation demanded by the new entrant is reasonable. PTS found that the new entrant's compensation was unreasonable, and considered that a reasonable compensation would be 10% higher than the cost-oriented price, which PTS has determined to be SEK 1.13 per minute (as described above), i.e. SEK 1.24 per minute.

LOCAL ACCESS

Although 95% of all households are serviced by more than one network (including mobile, but not yet including wireless local loop), there is still considered to be insufficient competition in the local loop. In September 1999 PTS therefore proposed amendments to the Telecommunications Act, whereby the licence conditions of SMP operators would oblige them to provide cost-based access to their local loop on (reasonable) request. There are also provisions on facility sharing and collocation. All types of requested access should be provided (not just, for example, leasing).

The proposal is currently being considered by the Ministry, but requires further consideration, since the Swedish Government has deemed that it infringes the Constitution (in particular the Freedom of Speech Act, according to which every Swedish person has the right to broadcast radio programs over wire). A study of this matter is in progress. If the Constitution has to be amended, the earliest adoption date would be in 2003, since a constitutional change requires two Parliamentary decisions, with a general election between the first and the second. However, the proposed Regulation on LLU requires Member States to introduce access to the local loop by 1 January 2001. At the Telecommunications Ministers meeting on 3 October 2000 Sweden supported the proposal.

In connection with the notification of the proposed Telia/Telenor merger, Telia gave undertakings to unbundle the local loop. Although the merger did not take place, in March 2000 Telia voluntarily offered other operators access to the local loop. The incumbent also offers collocation at cost-oriented prices, but does not offer line-sharing, for technical reasons. However, many new entrants consider that the prices for access to the local loop are so high that it is not possible for them to compete (operators have to pay SEK 1 500 per customer per year for access to the local loop, compared to a line rental charge of only SEK 1 008 per customer per year). The incumbent agrees that the line rental charge does not cover its costs, but it is subject to a price cap. There are currently few agreements on local loop unbundling, due to the pricing problem, but PTS hopes that this barrier to entry might be overcome if the price cap were eliminated by the end of the year. Some new entrants claim that the undertakings given to the Commission in connection with the proposed merger offered more far-reaching local loop unbundling than that currently offered by the incumbent. Some are considering using the cable TV networks to provide telecommunications, although this will not be possible until those networks have been upgraded. In Sweden 2 million households have cable TV, and cable TV is being developed to become an alternative way to reach customers.

The incumbent offers ADSL access, but according to some new entrants the price is still so high that no operator is able to compete effectively with Telia.

Wireless local loop licences have been awarded to those who applied, within the limits of the available frequencies. However, new rules require these licences to be granted through a call for tenders. PTS issued guidelines in September, and the licences are due to be awarded before the end of 2000. There appears to be substantial interest in such licences, since many operators consider this

type of access to be an alternative to access to the fixed network, and a number of operators have been carrying out trials for the last two years.

UNIVERSAL SERVICE/CONSUMERS/USERS

Currently the incumbent does not receive any contributions from other operators towards the cost of providing universal service, due to the low cost of universal service provision. Sweden at present has no plans to introduce a financing scheme, although the situation might change, for example if the competitive situation changes or the cost of providing universal service increases.

Consumers have the possibility of complaining about, for example, phone bills to the Consumer Authority and to PTS. Although PTS does not have any formal obligation to deal with complaints from the public, it accepts such complaints since they are an important source of information and can cause PTS to take action in the context of its general supervisory tasks. PTS can order an operator to take certain measures, and also has the right to impose fines.

The number of complaints received by PTS increased significantly in 1999 compared to 1998. Most complaints concern the introduction of CPS, in particular the administrative procedures, and a few concern PTS's role. The Consumer Authority also received a number of complaints regarding CPS in 1999.

The Consumer Authority, in cooperation with PTS and the Competition Authority, has carried out a study of the Swedish mobile telephony market from a consumer perspective. The report concluded that there is insufficient information about conditions and prices for mobile telephony, and that prices are too high. It also found that it is difficult for users to change operator, one reason being that some operators retain money paid in advance for future calls when the user decides to change operator. The Consumer Authority has ruled that conditions resulting in the retention of advance payments when the user changes operator are unreasonable, and applied to the Court for these conditions to be prohibited. The Court indeed prohibited these conditions, as far as the incumbent is concerned, in October 2000.

Competition in the field of directory services and directory enquiry services is considered unsatisfactory. According to the Act, operators must provide information about their subscribers for numbering information and directory purposes. There are, however, several points which are not clear with regard to the form in which the information should be provided, the degree of value added, pricing etc. EC legislation requires operators to provide the information in a fair, cost-oriented and non-discriminatory manner, but there do not appear to be any corresponding provisions in Swedish legislation. A number of operators are concerned about the conditions for access to relevant information in order to provide directory services and directory enquiry services, and a number of complaints have been lodged with the relevant authorities in this area. Complaints have been lodged with PTS regarding the conditions of access to the incumbent's subscriber information, which were considered unreasonable. PTS mediated unsuccessfully during 1999 and is now considering the possibility of issuing guidelines in this area. In September 1999 the Government asked PTS to investigate the lack of a common directory and directory enquiry service for fixed and mobile subscribers, which is a requirement under EC law, but which does not exist in Sweden. The results of the study were finalised in September 2000.

MOBILE SERVICES INCLUDING THIRD-GENERATION AND ROAMING

The Fifth Report noted that PTS is responsible for frequency assignment. In the past some new entrants were concerned that the analogue NMT 900 system (where the incumbent is at present the only player - but there are currently only around 100 000 subscribers) continued to occupy part of the 900 MHz band, although the GSM Directive requires this band to be reserved exclusively for GSM according to commercial demand. However, these concerns have not been mentioned again. It is indeed planned to allocate the 900 MHz band exclusively to GSM by 2010, and frequencies are gradually being transferred from analogue to GSM. More importantly, following a decision by the incumbent, the whole analogue NMT 900 system will cease to occupy the 900 MHz band by the end of 2000. This has implications for the ongoing process of issuing UMTS licences, since up to two new licences may be combined GSM/UMTS licences.

PTS originally proposed to award five licences for the provision of network capacity for mobile services according to the UMTS/IMT 2000 standard, but existing mobile operators protested that there would not be enough frequency spectrum for so many licences, since each of the UMTS licensees would only get 2 × 10 MHz, which they claimed was not sufficient. Sweden eventually decided to award four licences for third-generation mobile telephony through a beauty contest. Up to two new third generation licensees will also get licences for GSM. The tender procedure started in May 2000, with licence applications to be received by September and licences to be granted in November 2000. The criteria for selecting operators relate to financial strength, technical plans, business, market and investment plans, mobile telecommunications know-how, and plans for coverage of the UMTS network. The UMTS licensees will each get 2 × 15 MHz + 5 MHz.

PTS has expressed concern with regard to the competitive situation in the mobile market, and considers that there is an oligopoly situation (with the incumbent holding more or less 50% of the market, and two new entrants holding approximately 25% each, and with the prices being more or less the same). This is considered to be particularly clear in the pre-paid card market, where all three operators have exactly the same prices. PTS has therefore taken steps to increase competition in the mobile market, inter alia by forcing the incumbent to lower its interconnection charges for calls to mobile and by making several proposals for amendments to the Act with regard to national roaming and access to mobile networks. PTS, together with the Competition Authority and the Consumer Authority, has also presented a report on the competitive situation on the mobile market, according to which mobile prices were quite high. According to PTS, operators responded by lowering their prices. Finally, the forthcoming closure of the incumbent's analogue NMT 900 system in the 900 MHz band will liberate frequencies allowing PTS to award two more GSM licences that can be combined with UMTS licences, as described above.

In 1999 PTS considered that there was insufficient competition on the mobile market - mobile tariffs remain high and handsets are subsidised. In order to enhance competition, in March 1999 it proposed an amendment to the Telecommunications Act whereby licence conditions would incorporate an obligation for mobile network operators to provide access to their mobile network capacity on market terms (but non-discriminatory with regard to the conditions applied to their own businesses), if there is spare capacity. The amendment entered into force in May 2000. Many operators consider that the law has not yet had any effect on the market, and that it is too weak to have more than a limited effect. There are five service providers present on the Swedish market, but some of them had started their activities before the amendment entered into force. However, PTS maintains that the recent legislation played a role even before it was enacted, in that it helped open a debate about the lack of dynamics of the mobile market, and in that operators saw in which direction the legislation was heading, and therefore agreed to sign agreements with service providers. PTS is currently looking into the issue of "spare capacity", since some operators claim that there is limited capacity

available, in which case the operator would not be obliged to provide access to its network for service providers.

In January 2000 PTS proposed an amendment to the Act regarding national roaming, whereby certain mobile operators would be obliged to give access to their networks to a new mobile operator with a network licence, where this operator does not have coverage. Access should be on market terms, but the right to roaming is limited to seven years after establishment. Parliament adopted the amendment in June 2000, and it entered into force in the summer. Some operators consider that this amendment is also too weak to have any real effect on the market, since the rules only favour a new mobile operator which does not have any network of its own.

TARIFFS

A price cap prevents the incumbent from increasing fixed fees such as installation and line rental charges more than the change in the retail price index. The current price cap regime applies until the end of 2000. The incumbent would like the price cap to be lifted, enabling it to set its prices freely, since the price cap currently prevents it from setting cost-oriented fixed charges, and the current charges do not cover the costs. PTS recently proposed that the price cap be lifted, but the Government has yet to decide.

The tariffs for calls to mobile were stable for several years, then started to fall in 1999. Prices fell when certain operators bypassed the high interconnection fees (SEK 2.75/minute) by routing calls abroad ("tromboning"). The calls were then charged as international calls (for SEK 0.30/minute), and although other costs of SEK 0.30-0.40 were added, prices could be reduced quite substantially. The operators who resorted to tromboning made higher margins on these calls, which enabled them to compete more strongly on other calls. Other mobile operators disapproved of tromboning, since they lost a lot of interconnection revenues.

COST ACCOUNTING

Many new entrants have repeated their concerns about the lack of transparency of accounting information (required for verifying accounting separation, cost orientation of end-user tariffs, and non-discriminatory pricing), which they consider makes it difficult to assess the cost structure and the degree to which end-user tariffs have been re-balanced. In relation to non-discriminatory pricing, many operators are still calling for the incumbent to be required to provide and publish relevant accounting information, with, as a minimum, its cost allocation and cost allocation principles, to show that cross-subsidisation does not occur. PTS requires the incumbent to provide relevant economic information regularly, which it then uses for its own ongoing surveillance duties. Based on the findings of its regular monitoring of the incumbent's accounting information, PTS publishes an annual report on the deficiencies in the incumbent's accounting system and the proposed remedies. It also draws up a more comprehensive report, which is not published since it contains commercially sensitive information. PTS also verifies the incumbent's internal transfer prices in order to verify that the non-discrimination principle is followed, and that no cross-subsidisation occurs. PTS maintains that a description of the incumbent's cost-accounting system including the main categories under which costs are grouped and the rules for cost allocation is publicly available, although not in a single document.

LEASED LINES

Previously some new entrants expressed concern about the high price of 'Digital X-line' (a high-capacity end line out to the customers) which is leased out by the incumbent, but these concerns have not been repeated, and no formal complaints have been lodged. The Fifth Report showed that the prices for national leased lines (analogue, 64 Kbit/s and 2 Mbit/s) were among the lowest in Europe. However, prices for international leased lines (analogue and 64 Kbit/s to a distant EU country, analogue and 64 Kbit/s to the US, 2 Mbit/s to a distant EU country and 2 Mbit/s to the US) are high, and sometimes among the highest in Europe. This is, however, not a matter of priority for PTS, since there are very few leased lines disputes in general, and no disputes at all regarding the prices for international leased lines.

NUMBERING

PTS is responsible for the allocation of numbers, and all operators are granted number capacity on equal terms and conditions. Two numbering plans have been created and published by PTS since 1993, one each for the telephony and public data networks.

Previously, the main concern of most operators in respect of numbering was the implementation of carrier pre-selection (CPS), where PTS's failure to set guidelines or intervene in a timely manner was considered to have created considerable uncertainty. There were problems between operators, between operators and their customers, and between PTS and operators.

PTS has admitted that it might have overestimated the capacity of the industry to solve various practical problems, and that as a result it might have regulated this field insufficiently. It therefore decided to commission an independent assessment of CPS implementation. The study concluded that PTS should have been more active, and that the problems were aggravated by the fact that the relevant legislation only entered into force on 1 July 1999, two months before CPS was introduced, which limited the scope for PTS to act. However, most operators now agree that the implementation of CPS is no longer a problem, partly due to subsequent PTS intervention, including further secondary legislation and mediation in disputes between operators.

It is too early to fully gauge the effects of the introduction of CPS, since it was only introduced in September 1999, but it would appear that there has been a massive take-up of the service, and it is thought to have contributed to lower retail tariffs and an increased number of operators. In December 1999, 91% of the Swedish population knew that they could choose another operator through CPS. In December 1999, 41% of the population stated that they had chosen an operator (roughly half of them had chosen to stay with the incumbent, and half had chosen another operator), while 33% stated that they would not choose (which means that they will stay with the incumbent). By the end of December 1999, 1.4 million subscribers were indirectly connected to an operator other than the incumbent: half had chosen another operator through CPS, and half had chosen another operator by dialling a prefix (compared with 750 000 having chosen another operator by the end of 1998). In 1999, 28% of households used an operator other than the incumbent (up from 14% in 1998).

CPS is available for long-distance national calls, international calls and calls to mobile. It is also available for local calls, but only if the area code is dialled, otherwise the call is routed via the incumbent's network. This solution, which was chosen due to technical constraints in the network switches, leads to the pre-selected operator losing a certain amount of calls within the same area

code, and also causes confusion for the users. PTS will take action in the autumn of 2000 to overcome the problem.

As regards costs for CPS, the Act requires operators to base the fees that they charge each other on costs related to the day-to-day operation of CPS, and not on the costs of the investments necessary to make CPS technically possible. In practice this rule applies only to the incumbent. The fee for CPS was SEK 35 for national or international calls, and SEK 67 for both types of call. In May 2000 PTS required the incumbent to reduce the CPS fee to SEK 9.25 for either national or international calls and SEK 15.20 for both types of call. The incumbent has the right to compensation for operational costs only (the costs of processing orders), but PTS considered that it tried to recover other general costs as well. The incumbent appealed against the PTS decision in June 2000.

There was previously concern on the part of some operators that number portability would not be in place by the stated date, and that PTS did not have the necessary powers for controlling its practical implementation. The introduction of number portability for fixed telephony services (including ISDN), premium-rate calls and free-phone services began on 1 July 1999 and was completed in December 1999, using onward-routing technology. There has been very little take-up of the service: only 600 numbers have been ported.

Many operators claim that the low take-up is partly related to the fee for porting numbers, which they consider to be very high. The operator from which the number is ported has the right to compensation for current costs related to the handover of the number, and to compensation for increased traffic costs. Operators have had difficulties in reaching agreement about the economic conditions, and PTS is currently proposing an amendment to the Act regarding the principles of compensation for number portability.

Currently the donor operator (often the incumbent) can recover additional traffic-related costs, but PTS considers that this provides no incentive for cost-efficient routing solutions. In June 2000 PTS therefore proposed to amend the Act so that the donor operator and the call originating operator should divide the additional traffic costs equally. The incumbent currently charges an initial fee of between SEK 740 and SEK 1 340, and an additional fee of SEK 0.11 per call for traffic to geographic numbers and SEK 0.05 for traffic to free-phone numbers. There is currently a dispute between a new entrant and the incumbent relating to remuneration for number portability. The incumbent has, as part of the dispute, requested that PTS make a decision regarding the level of compensation for administrative costs for handling orders for number portability.

Mobile number portability is to be introduced in September 2001, but there are a number of practical problems still outstanding which cause concern to some operators. Operators have been unable to agree on a common database, and at present numbers are ported manually. Operators are particularly concerned that a manually supported system, like that for fixed telephony, will not be feasible, since it is expected that many mobile numbers will be ported and it is feared that there will be severe disruption when mobile number portability becomes operational. The industry is cooperating with PTS on the setting-up of a common database, but has not yet been able to reach agreement, despite the fact that some operators believe that a common database is essential if mobile number portability is to become operational in September 2001.

RIGHTS OF WAY

Facility sharing is not compulsory, but rights of way/access to property may be granted through individual agreements or under the Right of Way Act (applicable to both public and private entities).

The incumbent also provides collocation, although not at its main switching facility, for technical reasons.

In Stockholm, Stokab (owned by Stockholm municipality) is the sole company authorised to dig new tunnels and lay fibre in the ground, through an agreement with the City of Stockholm. Certain operators have had the impression that this restricts competition. However, the Competition Authority has looked at the competitive situation and not found any reasons to interfere, and Stokab is required to give access to anyone requesting it on non-discriminatory terms.

DATA PROTECTION

PTS is the authority responsible for the enforcement of data protection in the telecommunications sector, and follows developments in the security of electronic information handling.

Sweden has transposed the Telecommunications Data Protection Directive (Directive 97/66/EC), including Article 5, for which the deadline for transposition is 24 October 2000. The Swedish legislation states that anyone who provides, within a publicly available network, telecommunications services or network capacity, must ensure that their activities fulfill reasonable requirements on reliability and technical security. In case of a particular risk of a breach of the security of the network, subscribers must be informed concerning such risk and any possible remedies, including the costs involved.

As regards data processing, the Swedish legislation states that anyone who has access to data regarding a particular telecommunications message must erase or make anonymous such data at the end of the call or when the message has reached its destination. Data which are necessary for subscriber billing or payment of interconnection charges may be processed until the outstanding payment is made or until the end of the period during which the bill may be lawfully challenged or payment may be pursued. Data may be used for marketing the service provider's own telecommunications services if the subscriber has given his consent.

Most operators state that they have no concerns with respect to data protection. EC rules on, for example, storage of traffic data, deletion of certain data etc., are considered fair and not too far-reaching, and are easy to follow.

INTERNET

By the end of 1999 there were 2 million dial-up accesses to the Internet, which represents an increase of 30% since 1998. There were around 100 ISPs operating on the Swedish market, ten of which have large-scale operations. At the beginning of 2000, 45% of Swedish households had access to the Internet from their homes (30% the previous year). More than 50 % of the Swedish population used Internet (at home or at work) in the first months of the year 2000, which is well above the EU average of 30 %. In 1999 the incumbent had a market share of 34% (by value).

One development in 1999 which has received a lot of attention in Sweden is the provision of broadband access to residential customers. A number of market players currently offer to install local area fibre networks that give households permanent, high-capacity connection to the Internet. The different operators are now competing fiercely to conclude installation and content agreements with the main owners of residential housing (blocks of flats). Cable TV operators have also started to offer households broadband connections over their existing networks. In most cases ownership of the local area networks will be transferred to the housing associations, although operators normally maintain the right to deliver content services through the network for a certain period (normally 3-5

years). In a number of new apartment blocks, networks have been installed that could carry both telephony and broadband services. This situation might create a de facto monopoly where the users are tied to one particular service provider/operator, and where it is difficult for other operators to provide their services. The Government ordered PTS to investigate and propose measures that would prevent the risk of monopolies in the rapid development of broadband networks in apartment buildings. PTS recently concluded this study, and proposes to further investigate whether to amend the Act so that interconnection also covers Internet access. The study also proposes to monitor developments in this area, to set up a reference group, and to spread information to increase the knowledge of what types of broadband access and content are on offer.

There has been a very lively debate in Sweden about the construction and financing of a fibre broadband network capable of reaching every Swedish municipal center at an acceptable cost for the users, and the promotion of local/regional and access broadband networks to every Swedish home. The Government will also support local broadband infrastructure and access to broadband networks in rural areas. The recent Government Bill on IT policy sets out plans to extend the Swedish National Grid backbone to all municipal centres in Sweden on strictly commercial terms, and to add fibre to the grid. The whole fibre network has to be open to any operator who wishes to purchase capacity. The backbone should be up and running within two years at an estimated cost of SEK 2.5bn. Government funding will be provided for the establishment of regional networks between municipal centres and access networks, with priority given for regional and policy reasons where the market cannot be expected to meet the need for such links within the next five years. The Government will grant SEK 2.625m for the construction of the regional network. The Government has also reserved SEK 3.2bn for the construction of local loops. This money will be used partly for municipalities supporting the construction of local loops where there is no market provision, and partly for tax relief for subscribers who install broadband access, in order to encourage access to high-capacity networks.

PTS recently determined that under certain circumstances Internet traffic falls under the Telecommunications Act. Voice over IP will under certain circumstances be considered as voice telephony, and ISPs that fulfil the criteria for telephony service are required to register (declare) with PTS and will have the same rights and obligations as other registered operators. Also, ISPs that provide network capacity or mobile access will have to register with PTS. The rules on interconnection in the Act also apply to ISPs under certain circumstances. An ISP with an activity of significant scope (roughly 5-15% market share) has an obligation to interconnect on market terms with other registered operators.

Until autumn 1999 the price for dial-up Internet access corresponded to the price for a local call, but in autumn 1999 several ISPs introduced a special tariff for dial-up access to the Internet. A number of recently established Internet operators apply a new business strategy: their revenues do not necessarily have to come from subscription fees and traffic charges, but could instead come from advertisers and service providers which use the customer base built up by attractive subscription arrangements. Internet access is thereby no longer necessarily a service that generates an income directly, but a means to generate income from other sources. These operators are therefore prepared to accept losses on the provision of Internet access (in practice subsidising the Internet access) in exchange for future revenues from advertising, content and services. This has resulted in massive price cuts on Internet subscription fees, and revenue from Internet access has been reduced. It has also resulted in a greater variety of Internet access services, with some operators offering free subscriptions to relatively low-quality services, and other operators offering higher-quality services and access to a great number of value added services.

UNITED KINGDOM

OVERVIEW

In the last year the UK authorities have taken action in a number of areas. They have introduced an obligation for BT to provide unbundled access to its local loop and facility sharing, and a national roaming licence condition to help level the playing field for the third-generation new entrant to the mobile market. OFTEL has also made an important Determination concerning the provision of a flat-rate Internet access call origination product (FRIACO), in order to allow other operators and ISPs to compete with the incumbent in providing flat-rate packages for Internet access. In addition, the UK authorities undertook Europe's first auction of third-generation mobile spectrum. OFTEL has also started a series of major reviews of key sectors of the telecommunications market, investigating whether competition is effective and the level of regulation appropriate.

170 operators now offer public voice telephony. The incumbent's market share (by revenue) has continued to decline: to 68.4% for all calls in 1999/2000 (down from 71.2% in 1998/99); 73.4% for local calls at end 1999/beginning of 2000; 65.0% for long-distance calls in 1999/2000; 49.4% for international calls in 1999/2000; and 36.1% for mobile telephony at end 1999/beginning of 2000. Fixed tariffs have fallen since last year. The average monthly bill for national voice telephony (residential users) had decreased by 4.8% in 1999/2000. In the same period the average cost of an international call fell by 36%. Mobile penetration has increased substantially during the past year, and in August 2000 reached 54%. Slightly more than 30% of UK inhabitants used Internet (at work or at home) in the first months of 2000, which is around the EU average.

NATIONAL REGULATORY AUTHORITY AND APPEALS

OFTEL is regarded by many other NRAs as the benchmark for an independent, efficient, competent and proactive regulatory authority. In general, new entrants are satisfied with OFTEL's current performance and consider that it carries out its tasks in an efficient and fair manner. Some, however, claim that it has inadequate resources, both in terms of manpower and access to expertise, in particular in relation to new services and Internet, and a high staff turnover.

Conversely, OFTEL claims that it has adequate resources, although it admits that staff turnover is high, and that it has no difficulty recruiting high-quality staff, obtaining expert advice, or undertaking research. It acknowledges that 1999 was a year of high turnover (45%), but claims that in 2000 the situation has improved somewhat. Many members of staff currently on short-term contracts are in the process of being offered permanent contracts. In the past year, OFTEL has further improved its staff training programme and has also undertaken an in-house study of pay and grading, the results of which will be available shortly. This is being complemented by a wider-ranging study of the options available to OFTEL under the existing UK public-sector pay policy and whether greater freedom is needed to align pay more closely with market rates. OFTEL is prepared to seek in-year budget increases where necessary, and welcomes a more flexible funding regime for UK regulators.

OFTEL has also improved the way it manages the development of regulatory policy and the monitoring of compliance by clarifying its management structure and introducing project planning. It

has greatly expanded its work programme and increased the number of staff working on Internet issues - as regards both policy development and compliance monitoring - with a view to acquiring the knowledge it needs of the latest technologies to respond to market developments.

Some new entrants claim that OFTEL is slow in making decisions and does not always comply with the six-month limit set by EC legislation for the resolution of interconnection disputes, and a formal complaint has been lodged in respect of one such case. OFTEL, however, considers that its track record in keeping to deadlines is reasonable. In particular, it notes that very few determinations (none in relation to Internet issues) have been challenged in court. It is making further improvements, inter alia by better informing complainants about the information they need to provide when lodging complaints. It stresses that the FRIACO case (see Internet chapter) was concluded within six months, before BT had implemented its retail offer. It further points out that in 1999 it received 118 new allegations of breaches of telecommunications licences or other substantive issues, and that by August 2000 all but one had been resolved.

OFTEL currently has the powers prescribed under the EC Telecommunications Directives, and since new competition legislation came into force in March 2000, it has had important powers in the competition field (OFTEL then became the competition authority for telecommunications, concurrently with the Office of Fair Trading (OFT)).

Some new entrants are concerned that OFTEL is not always sufficiently proactive. However, OFTEL maintains that it acts proportionately, focusing on the most important problems, and that it has a clear strategy in the context of rapidly evolving regulation and markets. It considers that regulation in an increasingly competitive market should leave space for negotiation between the parties, with rapid and authoritative intervention in the event of disagreements, and sees the FRIACO Determination as exemplary in this regard. It further considers that regulation should be adjusted to reflect the state of the market, and therefore aims at rolling back formal regulation where competition is effective. However, its public statements and actions have repeatedly shown that it will not hesitate to take formal action where it is justified, for example where a co-regulatory approach fails.

OFTEL has started a series of major reviews of key sectors of the telecommunications market, investigating whether competition is effective and the level of regulation appropriate, and establishing international benchmarks. It has already reviewed and liberalised the international voice telephony market for a number of key routes. It has also reviewed the leased lines market and, subject to consultation, will implement its conclusions by the end of 2000. The mobile and dial-up Internet access sectors are currently under review.

In the last year OFTEL has taken action in a number of other important areas: obliging BT to provide unbundled access to its local loop; introducing a national roaming licence condition; and issuing a Determination concerning flat-rate Internet access call origination (FRIACO). In addition, the Radiocommunications Agency (RA), with input from OFTEL on competition and general regulatory issues including national roaming, undertook Europe’s first auction of third-generation mobile spectrum (see section 6 of the Report).

OFTEL decisions under the Competition Act 1998 are subject to appeal to the Competition Commission. A decision of the Competition Commission is in turn subject to appeal, on a point of law, to the Court of Appeal, and from there to the House of Lords. Other OFTEL decisions are subject to judicial review on usual UK administrative law grounds. A wider form of judicial review which allows appeals against the procedure by which, and the findings of fact on which, the decision was based has recently been introduced for matters covered by the Licensing Directive and the

Interconnection Directive. The appeals mechanism (in Section 46B of the Telecommunications Act) also allows an appeal by a third party. One operator has already made such an appeal (against the Director General's Determination relating to Interim Carrier Pre-selection).

LICENSING

The UK licensing scheme is relatively light with many general authorisations (class licences) and licence conditions in compliance with EC law. Some new entrants have, however, minor concerns that many licences are now more detailed than before. The Department of Trade and Industry (DTI) explains that although licences are now longer, many conditions apply only to operators with market power, and therefore do not apply to the majority of operators. Further, longer licences increase transparency by consolidating all relevant regulatory texts in a single document, making it easier for licensees and their legal advisers to assess their rights and obligations. The additional conditions were incorporated into licences in order to implement European requirements, and the UK authorities intend to propose changes to the licensing system in the Communications White Paper later this year in the light of the adoption of the new EC Directive covering licensing. Furthermore, the most important class licences have a set of guidance notes.

Since the Fifth Report, the Telecommunications Act has been amended and a simplified licence modification procedure introduced. In very limited circumstances, the Director General of Telecommunications can modify licences without reference to the Competition Commission. Any individual licensee can object to the proposed modification, thereby automatically triggering a referral to the Competition Commission, unless the Director General decides to abandon the proposed modification. What has changed is that each and every licensee is no longer required to consent (it must make an objection to trigger the referral). The intention was to make the licence modification procedure smoother. Under the new procedure, any licensee who does not object after receiving two separate notices can have its licence modified. One modification has already been made under this new deregulatory procedure.

There are no fees for general authorisations, and new entrants do not perceive the fees for individual licences (based on costs) to be an obstacle.

A matter of concern for some new entrants is the introduction into all public telecommunication operator (PTO) licences in 1999 of a "market influence" trigger, which triggers a set of ex ante obligations (inter alia an obligation for mobile operators to offer mobile air-time to service providers). Some new entrants feel that this gives OFTEL excessive discretion to deal with operators having "market influence", and are particularly concerned that OFTEL can define much narrower markets for the purposes of its market analysis. The UK authorities point out that the criteria are published, and that operators have the opportunity to challenge the decision. OFTEL maintains that the "market influence" trigger complements the SMP rules and obligations, allowing more precisely targeted and therefore proportionate regulatory action than the SMP rules.

Some new entrants have concerns about the time it takes to obtain a licence, claiming that it can sometimes take anything between four and eight months to get a PTO licence. DTI, as the responsible regulatory authority, maintains, however, that the average time taken to issue individual licences for public voice telephony and public networks (including both PTO licences and other individual licences) is just over five weeks. The granting of some licences was, however, delayed by the statutory process of implementing changes to licences pursuant to various EC Directives. DTI and OFTEL are currently looking at how they might streamline their procedures, and considering

changes to the licensing guidance notes to ensure that applicants understand what information they are expected to submit.

A minor problem raised by some new entrants concerns the incumbent's refusal to enter into any wholesale agreements with organisations not identified on OFTEL's web site as organisations authorised to provide public telecommunications services in accordance with Annex II to the Interconnection Directive. This causes problems when Annex II status has indeed been granted, but the updating of OFTEL's web site has been delayed. OFTEL is taking steps to tighten internal procedures, but has also asked BT on several occasions to contact it directly to establish whether a company is covered by Annex II, instead of waiting for the web site to be updated.

INTERCONNECTION

The Fifth Report concluded that, in general, operators considered that the incumbent's interconnection charges complied with the cost-orientation requirement, and that its cost accounting system was in accordance with Community law. Reciprocal interconnection charges apply for call termination. Many operators still agree with these general conclusions, although some new entrants find that the calculations underlying the incumbent's interconnection charges are not very transparent, and that it is not always clear that all interconnection charges are cost-oriented. However, its regulatory accounts are independently audited and published annually. It is for the incumbent to demonstrate both that interconnection charges are cost-oriented, and that regulatory accounts include detailed cost information. Those accounts are supported by publicly available policy, procedure and methodology documents.

Interconnection charges for calls to Vodafone and BT Cellnet are now subject to price control in accordance with the findings of the Monopolies and Mergers Commission ("the MMC", now the Competition Commission) that the charges were excessive and not subject to sufficient competitive constraint. Similarly, the MMC considered the level of BT's retention — added to termination charges in reaching the retail price — and found it excessive in relation to cost. OFTEL has required BT to reduce the retention to cost-oriented levels. OFTEL has started the process of reviewing these controls, which expire in 2002, with a view to reaching firm conclusions by June 2001.

Some new entrants are concerned that interconnection negotiations for both new products and new pricing, in particular in the area of Internet-related products, are often protracted and generally result in determination requests. Whilst a determination eventually concludes a dispute, the failure to reach agreement within a reasonable period and the subsequent need to make such a determination request can be viewed as a delaying tactic by the incumbent. Operators should make representations to OFTEL whenever they consider that negotiations are not progressing quickly enough.

Another concern raised by some new entrants is interconnection with IP networks. New entrants claim that it is not possible to choose the level at which interconnection will take place, and that BT requires interconnection at the local exchange level. The alleged effect of this is that new entrants have to either replicate BT's network and interconnect at each local exchange, or use BT's network and hand over the traffic at a single interconnection point, but then it is not possible to compete. The FRIACO Determination has, however, addressed this issue by allowing traffic to be carried to operators' points of interconnection via interconnection extension circuits. OFTEL is seeking to identify a medium-term solution in the context of following up the FRIACO Determination. It has to take a view on the reasonableness of the requests from new entrants and balance that against the need to ensure that service on BT's network is not jeopardised by unsustainable traffic volumes. A further draft determination which addresses this and operators' original requirement for interconnection at the tandem switch will be published for consultation at the end of October.

LOCAL ACCESS

The incumbent's share of the local telephony market continued to decline last year from an already low level, compared to other Member States (down from 80.9% in 1998 to 74.9% in 1999). Competition on the local market is increasing, inter alia from cable TV operators who also provide telecommunications services over their networks.

On 8 August 2000 OFTEL brought into force a condition in BT's licence requiring it to provide other operators with unbundled access to local loops, and collocation facilities. It also gives the Director General of Telecommunications the power to resolve any issues on which BT and the other operators are unable to agree. BT has published a reference offer, and started to accept orders for collocation in September 2000. Once operators' equipment has been installed, OFTEL expects BT to provide unbundled local loops from January 2001. The delivery of local loops will initially be carried out using manual processes, which is likely to restrict the volumes supplied, but more widespread availability of collocation and local loops is expected from April 2001, once BT has installed its automated processing system. In September 2000 OFTEL published guidelines on the application of the unbundling condition in BT's licence, to ensure that BT provides service to other operators on fair and non-discriminatory terms. They include the provision of space in its exchanges for collocation. BT will have to provide collocation within a maximum of four months (except for circumstances outside its control), and once equipment has been installed, unbundled local loops must be provided within three to five days. OFTEL is preparing a draft Determination to be adopted in November 2000 regarding the allocation of space to operators in BT sites. OFTEL issued a consultation document on line sharing in October 2000.

In August 2000 OFTEL published its conclusions on charging principles for local loop unbundling. OFTEL intends to publish a draft Determination setting out starting charges for unbundled access to the local loop at the beginning of November 2000, and a final Determination in December 2000. OFTEL does not at present expect to set starting charges for collocation, which should be commercially negotiated, but in case of dispute it will determine a reasonable price (which will be cost-oriented, unless market valuation is lower).

Most new entrants view the fact that BT is required to provide unbundled access to local loops very positively. However, there is widespread concern about the criteria used by BT for assessing availability of collocation space and whether BT will adhere to the time-scales set out in the guidelines, and many new entrants expect delays in actual availability. Many new entrants are also concerned about the pricing and other conditions for collocation. OFTEL has appointed independent consultants to give it expert advice in the event of a dispute on the availability of space and proposes to appoint other independent consultants as necessary.

The Fifth Report noted that OFTEL intended to ensure that, when BT upgraded its access network to provide asymmetric digital subscriber lines (ADSL), wholesale products would be made available to other operators and service providers so that they could offer similar services over BT's network. BT is currently upgrading its network to offer ADSL services. BT has now launched four wholesale ADSL products, all available to other operators and service providers on the same terms and conditions. OFTEL has been monitoring BT's ADSL trials and roll-out since it announced its plans in July 1999, in order to ensure that BT meets its legal obligations, such as not unduly discriminating between its own service providers and other operators and service providers, and that wholesale products are made available to other operators and service providers on non-discriminatory terms and conditions.

In April 2000 OFTEL published an international benchmarking study, which showed that UK prices for ADSL services aimed at residential customers were broadly in line with European and US prices.

However, industry groups have lodged a number of complaints about BT's wholesale ADSL service (regarding pricing; other terms and conditions; and various other aspects). Many operators are also concerned about the time it takes to receive wholesale ADSL, partly due to the slow processing of orders, at a time when it is asserted that BT is able to take first mover advantage by offering its own retail service. There are also concerns that there is no mandated cost basis for ADSL, despite the fact that BT is currently the sole provider. However, under its licence BT must offer wholesale access products to competing service providers on the same terms as it offers to its own service provider business, and OFTEL maintains that there is no evidence that BT has been favouring its own ADSL retail service. OFTEL is currently investigating the complaints lodged with regard to ADSL, but is not currently considering price-setting for ADSL. OFTEL's view remains that as it wants to encourage ADSL roll-out to as wide a coverage as possible, it would be inappropriate to impose price controls on BT's own ADSL roll-out. However, OFTEL would be able to take enforcement action if there were any evidence that BT were in breach of its licence conditions or of the Competition Act.

The UK authorities are currently preparing an auction for 28 GHz broadband wireless local loop licences. The UK will be one of the few Member States to issue licences for use of the 28 GHz band for broadband WLL. The UK will award three equal-sized licences (each of 2 × 112 MHz) in each of 14 regions, with a 28 MHz guard band between each licence. The UK auction will be a simultaneous multiple round auction. Twelve applications were submitted on 5 September, and the auction is expected to start by the end of October 2000.

UNIVERSAL SERVICE/CONSUMERS/USERS

BT and Kingston currently have a universal service obligation (USO) under the terms of their licences. OFTEL's position is that the costs and benefits of providing universal service are closely matched. Since costs are currently in the range of £55-70 million and the benefits around £61 million, the net cost is not considered to be an undue burden and thus does not warrant a funding mechanism. A detailed consultation document issued in September 2000 recommended no change to the basic arrangements for universal access and support of uneconomic payphones, but did recommend a broadening of schemes to support telephony access for those on low incomes and an increase in the minimum data speed required to ensure that all users have the potential for workable and reliable Internet connection. The document also debated the issues which would need to be considered in any future move to expand the USO to broadband access.

The quality of service in the UK is illustrated by the following data: 96-97% (for BT) and 99% (for Kingston) of all orders for initial connection are completed by the contractual date, which is broadly similar to the performance in 1998. There are 4.0-4.6 faults per 100 customer lines per quarter for BT, and 3.4 for Kingston, which is similar to 1998. Around 79-83% of all faults are cleared within target time for BT, and 98-99% for Kingston. There are only 0.2-0.6 complaints per 1 000 bills for Kingston, and 1.7-2.3 for BT, which is very similar to l998.

As described in the Fifth Report, the Director General has a statutory duty under the Telecommunications Act to consider all representations (including consumer complaints about bills) that do not appear to be frivolous. OFTEL's Consumer Representation Section and the Advisory Committees on Telecommunications in Scotland, Wales and Northern Ireland perform this duty on the Director General's behalf. OFTEL dealt with 78 000 complaints in 1999, an increase of 55% on 1998. OFTEL maintains that action has been taken to increase staffing and improve systems to deal with complaints, and the majority of the complaints were dealt with within ten days. Some new entrants are, however, concerned about the way OFTEL deals with complaints, and consider that before sending complaints back to operators, OFTEL does not record sufficient information about

the client to verify that it really is a client of the operator concerned, or about the nature of the complaint, which means that the operator concerned does not have sufficient information to investigate the complaint or offer compensation. In a few instances OFTEL has, for example, sent operators complaints from clients of other operators. OFTEL accepts that when dealing with a substantial number of consumers, some of whom are confused by the profusion of companies and service providers, mistakes will occasionally occur. However, it maintains that instances of incorrect submission to operators are extremely rare. All complaints to OFTEL are recorded with personal details and categorised by issue.

OFTEL has set up a working group comprising itself, the industry and consumer groups, to explore the practicalities of introducing an Ombudsman, which it considers would aid the Director General in resolving disputes brought to him under the New Voice Telephony Directive. The plan is for the Ombudsman to be operational by the summer of 2001. OFTEL has challenged the industry to devise an industry-wide scheme to cover broader disputes about contractual issues, not just issues that fall within the scope of the New Voice Telephony Directive.

In addition, OFTEL has launched a number of consumer initiatives, inter alia the Phonebills web site, to enable residential price comparison; the TelecomsAdvice web site, which informs small businesses about the range of opportunities available in the UK telecommunications market; and Comparable Performance Indicators (CPIs), which provide comparable quality-of-service information on a wide range of telecommunications operators in the UK. OFTEL has also initiated quality-of-service surveys for the four mobile networks in the UK, which provide information on a national and regional basis on successful call set-ups, dropped calls and successfully connected and held calls.

MOBILE SERVICES, INCLUDING THIRD-GENERATION AND ROAMING

New service providers have begun to enter the UK mobile market, and consumers now have the choice of four GSM networks and a range of service providers (both tied to network operators and independent).

The Fifth Report concluded that although there are some bottlenecks related to spectrum availability, the Radiocommunications Agency seeks to manage spectrum in such a way as to ensure that sufficient spectrum is available for new and existing services, and the UK authorities believe that spectrum pricing and auctions have an important role to play in ensuring that operators have an incentive to optimise the use of spectrum.

The Fifth Report noted that part of the 900 MHz band, which the GSM Directive specifies should be exclusively occupied by GSM according to commercial demand, was still occupied by an analogue system, but that the analogue system was due to be phased out by 2005 at the latest. However, given the decreasing number of customers using the analogue system, these networks are now expected to close in 2001, and all the GSM spectrum will then be utilised.

The UK has allocated five third-generation mobile licences under the Wireless Telegraphy Act by means of an auction, which ended on 27 April 2000 with licences being granted to the four incumbents and a new entrant. The auctioned licences cover the 1900-1980 MHz and 2110-2170 MHz bands.

The third-generation licences contain an obligation to roll out a third-generation network covering an area where at least 80% of the UK population lives by 31 December 2007. OFTEL expects that competition will ensure a rapid roll-out of third-generation mobile networks, but should an operator fail to roll out a network, the roll-out obligation provides a backstop legal mechanism for revoking

the licence. Two existing second-generation mobile operators, Vodafone and BT Cellnet, agreed to a modification to their Telecommunications Act licences to incorporate a roaming condition which was triggered when they won a third-generation licence. The condition provides for the Director General of Telecommunications to determine a roaming agreement if the parties cannot reach agreement through commercial negotiation. The UK Government believes that mandating roaming will promote competition to the benefit of consumers and imposes the minimum degree of regulation necessary to achieve this. Before the roaming condition is triggered, a new entrant must build out its network to cover 20% of the UK population, and any mandated roaming agreement will last only until 2009. The decision to require roaming reflects earlier consultation with the industry, and was seen by prospective new entrants as an essential measure to help them compete on a more nearly equal basis. A new entrant is potentially at a considerable competitive disadvantage to existing operators who have established customer bases and nationwide networks. A new entrant would initially be able to offer third-generation services only in the area in which its own network had been built. However, customers will also want at least basic voice services nationwide. Roaming will enable new entrants to offer third generation services on a comparable basis to incumbent operators while they roll out their own networks. There is, at present, no mandatory national roaming between second-generation mobile operators.

Some new entrants are concerned that third-generation mobile operators will try to recover the high licence fees through increased end-user tariffs. However, the UK authorities believe that operators will have to set tariffs by reference to a competitive market and not by reference to a one-off sunk cost such as the third-generation licence fee. The UK authorities believe that auctions are a transparent and efficient means of allocating scarce spectrum, and allow the spectrum to be valued by market participants, not by the regulator or the government.

TARIFFS

The Fifth Report noted that tariff re-balancing had been completed, but OFTEL currently states that line rental income is not yet sufficient to cover fully allocated costs. However, OFTEL believes that BT's residential line rental charge now covers the incremental cost of providing the line.

OFTEL's latest consultation on price control, due to begin in October 2000, will ask whether competition is sufficiently developed to enable any of the price controls currently placed on BT's basic telecommunications services to be relaxed. At the network level, some new entrants consider that BT is able to squeeze margins, due to the flexibility given to it by the setting-up of multi-element baskets. OFTEL remains convinced that an ex-ante control based on individual baskets, backed up by powers to investigate allegations of unfair margin squeezes, provides the best balance between the legitimate interests of new entrants and the incumbent.

COST ACCOUNTING

BT has implemented accounting separation (between interconnection and other activities), and its cost accounting system is generally seen as complying with Community law. All BT's accounts are subject to an independent auditor's report and are published in accordance with accounting policies and procedures agreed with OFTEL. OFTEL has explained that BT's regulatory accounts are based on historic data and may not include relevant cost data for new services. Where it is necessary to examine the costs of a new service, OFTEL would typically require a business plan and cash-flow forecast to enable it to assess whether there is anti-competitive behaviour. OFTEL deems new network services to be competitive in principle (and therefore not requiring regulatory intervention) unless they are governed by the general provisions on interoperability. Other operators can appeal

against this classification if they can make a case to OFTEL that the services are not, in fact, competitive.

LEASED LINES

New entrants have again expressed concern about the high price of "last mile circuits", and consider local ends to be very expensive. Some new entrants are also concerned that the delivery of leased lines is slow, and some even say that getting the leased line delivered on time is more important than its price.

In November 1999 OFTEL launched a review of the state of competition in the market for national leased lines, prompted by concern about the lack of competition, particularly in the wholesale market for leased lines. International comparisons had shown that while BT's leased line prices were comparable with the leased lines prices in other EU countries, the UK's competitive position relative to the rest of the EU had eroded since the mid 1990s, and in most cases prices were higher than in the cheapest countries. US leased line prices were in many cases also below those in the UK. The conclusions of the review, published in August 2000, largely confirmed the findings of November 1999: the market for wholesale terminating segments (lines linking a customer's premises to an operators' trunk network) was not and would not become effectively competitive in the foreseeable future. The market for retail leased lines was also considered not to be effectively competitive, and OFTEL did not expect it to become effectively competitive until the lack of effective competition in the market for wholesale terminating segments was remedied. The review identified three possible solutions to the lack of competition, one of which was identification of a new wholesale product covering the terminating segment, the price of which would be controlled by OFTEL, with additional safeguard caps on retail prices for analogue leased lines. OFTEL will reach its final determination in the light of consultation by the end of 2000.

NUMBERING

As stated in the Fifth Report, OFTEL has been responsible for managing and allocating numbers since 1994. Any operator, including service providers operating under class licences, may apply to OFTEL for numbers, and operators may also obtain numbers by way of sub-allocation from an individually licensed operator. OFTEL has traditionally allocated numbers to operators in blocks of 10 000 (or 100 000), a system that has generally worked well, according to new entrants. However, some new entrants are concerned that OFTEL has recently argued for the introduction of individual number allocation for number translation services. According to new entrants, this would require an intelligent network database for looking up the entire string of digits of a particular telephone number in order to route the call to the network on which the user of the number resides. Conversely, when numbers are allocated in blocks, the routing of the call only requires the first four digits to be checked in order to identify the block of numbers to which the number belongs (and consequently to which operator's network the call should be routed). OFTEL has argued that individual number allocation would be more competitive and provide customers with a greater choice of numbers than block allocation, where customers are limited to the numbers allocated to their preferred operator.

There is no fee for granting/using numbers, but OFTEL has consulted on plans to start charging for number allocation in response to perceived inefficiencies of use, is in favour of charging, and has asked the Government for the necessary primary legislation. The numbering plan has been published.

OFTEL is currently implementing a new national numbering plan, which should be fully in place by October 2000.

The UK implemented geographic fixed-line number portability in 1996, and non-geographic fixed-line number portability in 1997. More than a million geographic numbers have been ported since 1996, and more than 91 000 non-geographic numbers since 1997. Mobile number portability has been offered since January 1999, and since then over half a million customers have ported their number when changing operator, and the trend is increasing. Subscriber-driven fixed-line number portability has been offered since January 2000.

Some operators are, however, concerned about the way OFTEL intends to enforce fixed-line number portability in the case of numbers that have been sub-allocated to systemless (non-licensed) service providers. According to some operators, OFTEL has in the past taken the view that it is for the network operators who sub-allocate numbers to service providers to ensure via their contracts that the service providers implement number portability, as contractual mechanisms provide a more rapid enforcement mechanism for the benefit of consumers than free-standing regulations. Since the industry has not provided a workable alternative proposal, OFTEL has tabled a compromise proposal, whereby the network operators would be responsible for policing the initial port, and OFTEL for all subsequent ports.

The Fifth Report noted that OFTEL had accepted that porting customers might incur a charge from the donor service provider, since mobile network operators had agreed not to seek to recover per-number set-up charges from each other. OFTEL generally considers that these charges should be determined by the market. Some mobile network operators are, however, concerned that some mobile service providers are levying administrative charges on customers porting their numbers (up to £50 per port), since this is considered to distort competition. OFTEL is currently looking into this practice, whilst also encouraging the mobile industry to introduce a more efficient system for handling port requests (OFTEL considers that the relatively high administrative charges are a result of the industry's inefficient transaction system). OFTEL has also made determinations of BT's costs and charges for geographic and non-geographic number portability based on fully allocated costs, and is currently considering portability costs and charges based on an incremental cost basis.

BT has offered carrier selection, on a call-by-call basis, since 1986. As noted in the Fifth Report, many operators saw the lack of carrier pre-selection (CPS) as a barrier to market entry, and many operators now have even stronger concerns, and a number have lodged complaints. Kingston Communications made CPS available from 1 January 2000. The European Commission granted the UK a deferment of its obligation to require BT to introduce CPS until 1 April 2000. The intention was that by 1 April interim CPS using autodiallers would be available. In March 2000 OFTEL made a Determination on the cost recovery of interim CPS, splitting the costs equally between BT and other operators, to ensure that this deadline was met and to provide sufficient incentive to provide interim CPS. BT appealed against the Determination to the High Court. In August 2000 the High Court ruled in favour of OFTEL on four of the five counts put forward by BT, but ruled that the March Determination should have been based on the costs of "dumb diallers" rather than remotely reprogrammable autodiallers. OFTEL has revised its Determination accordingly, whilst ensuring that a significant margin remains to encourage take-up of interim CPS. According to OFTEL, some operators are now placing autodiallers. OFTEL is working with all sections of the industry to ensure that permanent (or switch-based) CPS will be available to BT subscribers from the end of 2000 for national and international calls, and by the end of December 2001 for all calls.

RIGHTS OF WAY

The Fifth Report concluded that the legislation on access to public and private land did not appear to pose any major problems; that the Code Powers (which give operators the right to install facilities with the owner's agreement) appeared to be working well; and that OFTEL actively encouraged the sharing of facilities, including ducts and (in particular) masts.

The UK Government is considering the introduction of empowering legislation to allow for charging for occupation of the highway (certain highways under certain conditions) under a lane rental scheme. Some new entrants consider that the proposal would discourage the construction and upgrading of network infrastructure, and would distort competition, since new entrants who do not have a network comparable to BT's would be hit harder. The Government is also currently consulting on the procedures to be introduced for charging for prolonged occupation of the highway (where street-works take longer than agreed between the operator and the local authority). Under the proposals, such charging would become operational in April 2001.

Some new entrants are also concerned about problems they have encountered when they have sought to collocate their equipment with that owned by the incumbent. Such resistance by the incumbent has arisen in specific geographical areas (a bridge or a specific street), and the reason given by BT for its refusal to accommodate the request for collocation is that it is not dominant in that particular geographical area. OFTEL, however, notes that no formal disputes have been put to it in relation to this issue.

DATA PROTECTION

The Data Protection Commissioner has responsibility for enforcement of both general data protection enactments and those specific to the telecommunications sector. OFTEL also has certain responsibilities in relation to data protection in the telecommunications sector.

The UK transposed the Telecommunications Data Protection Directive (Directive 97/66/EC) in a number of stages. The final stage of transposition related to Article 5, which was transposed by the Lawful Business Practice Regulations, which come into effect on 24 October 2000. As regards security, the UK legislation provides that a telecommunications service provider shall take measures, if necessary in conjunction with the provider of the relevant telecommunications network, to secure the security of the service he provides. Measures shall only be taken if, taking into account the state of technological development and the cost of implementing the measures, they are proportionate to the risks against which they would afford safeguards. As regards processing of data, the UK legislation provides that personal data in respect of traffic handled by the telecommunications network provider/service provider, which is processed to secure the connection of a call, should be erased upon termination of the call. For the purposes of subscriber billing and interconnection payments, data may be processed until the expiry of the period during which legal proceedings may be brought in respect of payments due. Data may be processed by the telecommunications service provider for the purposes of marketing its own services only if the subscriber has given his consent.

Some new entrants are concerned about OFTEL's proposed implementation of Article 8(3) of Directive 97/66/EC, which provides that where presentation of calling line identification (CLI) is offered and where CLI is presented prior to the call being established, the called subscriber must have the possibility via a simple means to reject incoming calls where the presentation of CLI has been eliminated by the calling user. New entrants consider that this facility can be given to users via truly simple means, e.g. by not answering a call if the presentation of CLI has been eliminated, or through call barring. OFTEL's view, supported by the Office of the Data Protection Commissioner,

is that this is not a correct interpretation of the Directive. The fact that Article 8(3) rights are available only to subscribers, not users, and that there is no requirement to make this service available free of charge points towards a network solution. It is also questionable whether the full machinery of European legislation is required to empower customers not to answer a ringing phone. OFTEL further considers that a network-based solution is not particularly onerous or technically difficult to implement in an analogue environment. OFTEL strongly believes that UK customers should be able to enjoy the data protection and privacy rights offered by the Telecommunications Data Protection Directive.

INTERNET

Internet penetration is relatively high, with 28% of households having an Internet connection. Slightly more than 30% of UK inhabitants used Internet (at home or at work) in the first months of 2000, which is around the EU average. There are currently more than 400 Internet service providers (ISPs). The incumbent offers Internet services via BT Click and BT Internet. However, unlike in most other Member States, the ISPs related to the incumbent do not have a particularly strong market position, with only 9% of the overall market, and 7% of the residential market, in terms of subscribers. OFTEL considers that competition has led to the evolution of subscription-free (pay-as-you-go) services and, more recently, unlimited usage (or flat-rate) packages, which has led to rapid growth in the number of Internet users. In November 1999 OFTEL removed the link between the price of Internet access calls and the price of voice calls to enable ISPs to price more freely. Packages offering subscription-free access at rates below the price of local-rate voice calls are now on offer.

In March 2000 BT presented an unmetered tariff package, SurfTime, which it intended to offer to the public from 1 June 2000, and in spring 2000 a similar offering came from NTL. Both packages include unmetered access options for a fixed monthly fee, alongside cheaper pay-as-you-go prices. OFTEL was concerned that similar products should be rapidly offered on the wholesale market to ensure customer benefit and effective competition. Following a complaint, in May 2000 OFTEL made a Determination requiring BT to make available a wholesale unmetered Internet access service (Flat-Rate Internet Access Call Origination - FRIACO) to enable other operators to offer their own unmetered Internet access products and compete effectively with SurfTime. BT is currently required to provide FRIACO at the local exchange level, with traffic carried from the digital main switching unit (DMSU) level by interconnection extension circuits. The Determination was made in response to a complaint from an operator who had approached BT with a proposal for a wholesale unmetered interconnection product. BT has complied with the Direction and has offered the FRIACO product from the local exchange since June, although some new entrants consider it quite expensive. OFTEL continues to monitor the market, and will review the price of FRIACO at the end of 2000 when it has gained more experience with it. The issue of interconnection for FRIACO at the trunk exchange level (DMSU) is also being reviewed. A further determination which addresses this and operators' original requirement for interconnection at the tandem switch will be published for consultation at the end of October.

OFTEL is currently carrying out a general review of the Internet market, defining the issues and gathering material. It will produce proposals for consultation by the end of the year and a final statement in early summer 2001. OFTEL has also examined a number of complaints about SurfTime. Operators were concerned that BT had launched its retail product without at the same time offering a wholesale interconnection product, thereby precluding other operators from offering equivalent retail products (and leaving them no time to devise competing products). Moreover, SurfTime only offered connection to the local exchange, and interconnection was charged at pence per minute rates. OFTEL considers that the Determination of May 2000, requiring BT to provide FRIACO, has

solved the short-term issues related to SurfTime, ensuring that there was no material effect on competition, but a number of potential longer-term issues will be kept under review.

Annex 3

Regulatory issues: supplementary data

NATIONAL REGULATORY AUTHORITIES

This section indicates the number of staff employed by the national regulatory authorities (NRAs), the size of their budgets, and their sources of financing (Table 1). It also gives an overview of their activity in terms of granting licences and numbers as well as their involvement in or initiation of conciliation or settlement of disputes between operators (Table 2).

The information given in these tables is based on data made available by the NRAs themselves.

The figures given in Table 1, both in terms of budget and personnel, are **not comparable** across the Member States, because the range of tasks and powers assigned to the NRAs varies widely. In some countries, such as Italy, the NRA's tasks are very broad and encompass audiovisual and press matters, whereas in other countries these tasks are divided up between a number of organisations.

Table 2, regarding the dispute settlement and conciliation procedures handled by the NRAs, does not reflect the diversity of regulatory practices in the Member States. For example, Portugal did not state the number of conciliation and dispute settlement procedures that it had handled, but indicated that its action in the market had been characterised by several interventions of a more global nature on issues such as interconnection charges and conditions and the prices of digital leased lines.

In some cases (which have been indicated), the information given in this table refers to a different reporting period.

Table 1: Financing and staff of the national regulatory authorities

	Operational budget (millions of €)		Main sources of financing of the NRA's budget in 1999 (%)	Number of full-time staff (occupied posts)	
	1999	2000		Current	Projected
B	26.5	22.4	Licence application administrative charges, radio spectrum fees, number reservation fees (no figures given)	199	N/A
DK	16.5	18.5	97,3% of the budget financed by market actors: 59% from numbering fees paid by all licensed (fixed/mobile) operators; 39% from frequency fees, other fees, and the sale of goods and services	154	164
D	134.6	153.4	N/A	2446	< 2446
EL	9.0	12.0	100% financed by the fees/charges paid by all licensed (fixed/mobile) operators, of which 83% from the incumbent/SMP operators	27	60
E	11.3	12.3	98.6% financed by the fees/charges paid by all licensed (fixed/mobile) operators	106	111
F	13.5	14.0	100% financed by the state budget	140	174[1]
IRL	14.5	15.4	65% financed by the fees/charges paid by all licensed (fixed/mobile) operators (44% from the incumbent/SMP operators), the remainder by radio, cable and MMDS licensing and bank interest.	72	95
I	25.8	25.8	100% financed by the state budget. However, this is a direct passthrough of a levy on the turnover of all operators.	180	320
L	N/A	3.0	Financing by fees/charges paid by all licensed (fixed/mobile) operators (no figures given).	19	N/A
NL	10.6	11.0	76% financed by the fees/charges paid by all licensed (fixed/mobile) operators (24% from the incumbent/SMP operators)	96	115
A	5.5	7.2	100% financed by the fees/charges paid by all licensed (fixed/mobile) operators, of which 60% from the incumbent/SMP operators	55	60
P	46.7	46.1	90% financed by the fees/charges paid by all licensed (fixed/mobile) operators.	375	380
FIN	21.5	22.5	31% financed by the fees/charges paid by all licensed (fixed/mobile) operators (26.5% from the incumbent/SMP operators[2]), the remainder (69% or 14.84 million €) by TV licence fees, postal and Internet domain administration and other (non operator) licence fees.	210	210
S	19.9	21.2	71% financed by fees/charges paid by all licensed (fixed/mobile) operators (21% from the incumbent/SMP operators), 22.75% by previous excess revenue and 6% by the state budget.	178	184
UK	23.0	24.0	100% financed by the state budget. However, 83% out of this (£11,667,000) is a direct passthrough of licence fees paid by all licensed (fixed/mobile operators (59.5% by the incumbent/SMP operators). The remainder is state funded.	208	220

[1] Figure for the Ministry and NRA combined (as compared with the current figure of 169 for the NRA and the Ministry combined).

[2] €3.5 million frequency and licence fees; €2 million numbering fees.

Table 2: Sample of the NRA's activities in 1999

	Average time for granting individual licences for public voice telephony and public network	Average time for granting numbers	Number of conciliation/dispute settlement procedures handled by the NRA (in 1999, unless otherwise specified)
B	3 months	15 working days	Interconnection: 2 Special access: 1
DK	Not applicable (general authorisation system for fixed networks and services)	Max. 10 working days (average estimated to be slightly lower)	2 (one settled, one opened)
D	6 weeks	3-4 working days	Interconnection: 39
EL	N/A	N/A	Interconnection: 1 Leased line provision: 1 (*All disputes to date*)
E	6 weeks (four months if spectrum allocation)	5 weeks	Interconnection: 14 Public voice telephony: 4 Special access: 2
F	58.4 days	5 weeks	Interconnection: 9 Public voice telephony: 7 Special access: 2 (*Figures for 1997-2000*)
IRL	6 weeks	4 weeks	Interconnection: 24 Public voice telephony: 5 Special access: 1 Leased line provision: 4
I	6 weeks	30 days	Interconnection: 4
L	30 calendar days	2 working days	N/A
NL	15 calendar days	11 calendar days for free-phone and premium rate; 42 for other number categories	Interconnection: 7 Special access: 1 Scarcity of capacity: 3 Site sharing: 3 Access to cable: 3
A	4 weeks	10 working days	Interconnection: approx. 50 Public voice telephony: 31 Special access: 6 Leased line provision: 1
P	30 days	6 working days	No figures available
FIN	Not applicable (general authorisation system for fixed networks and services)	1 week	Interconnection: 5 Public voice telephony: 1 Local loop unbundling: 2
S	Licences: max. 90 working days (stipulated); notifications: less than 14 working days (average time)	Approx. 40 calendar days	Interconnection: 23 (*figure for the year 2000)*
UK	Just over five weeks.	28 calendar days	Interconnection: 20 Public voice telephony: <118 Leased line provision: 4

1. LOCAL LOOP UNBUNDLING (LLU)

Table 3: Availability and economic conditions of full unbundling of local loop, August-September 2000

	Availability	Lines for which LLU is operational	Operators with agreements in place	Economic conditions		
				Connection	Monthly rental	Pricing methodology
B	No (from 01.01.01)	-	-	-	-	-
DK	Yes, since 01.07.98	n.a.	8	€46.97-16.37[3]	€8.28	FDHC and best practice[4]
D	Yes, since 01.01.98	Approx. 400 000	87	n.a.	€12.99	LRIC
EL	No	-	-	-	-	-
E	No (from 01.01.01)	-	-	-	-	-
F	No (from 01.01.01)	None (trials under way)	None (but experimental licences granted)	Under discussion	Under discussion	LRIC
IRL	No	-	-	-	-	-
I	Yes, since 03.2000, but not yet operational	None (trials under way)	None (but 11 temporary agreements concluded)	€151.84 (proposed)[5]	€13.58 (proposed)[5]	FDHC
L	No	-	-	-	-	-
NL	Yes, since 01.06.00[6]	n.a.	9	n.a.	€10-15[7]	EDC
A	Yes, since 02.07.99	Approx. 100[8]	Approx. 108[8]	from €54.50	€12.35	FL-LRAIC
P	No	-	-	-	-	-
FIN	Yes, since 1996	Approx. 10 000	n.a.	n.a.	€5.05-25.03[9]	Company specific[10]
S	Yes, since 03.2000	n.a.	13	from €170.19	from €14.28	FDCC
UK	Yes, since 08.08.00, but not yet operational	None	None[11]	€235.61 (proposed)[12]	€14.75 (proposed)[12]	FL-LRAIC

Legend: "n.a." = information not available; "-" = not applicable; FDHC = fully distributed historic costs; LRIC = long-run incremental costs; EDC = embedded direct costs; FL-LRAIC= forward-looking long-run average incremental costs.

3 The fees apply respectively to the first and subsequent connections to the same local exchange covered by the same order.
4 LRAIC is envisaged from 2002.
5 The NRA is expected to issue a decision by the end of 2000.
6 KPN is due to make 200 main distribution frames ready for unbundling by the end of 2000.
7 Depending on location.
8 As of July 2000. The number of agreements includes Internet service providers.
9 Range of prices charged by the 46 SMP local operators in Finland.
10 Each operator applies its own standard. An appeal against the NRA's decision on LLU pricing and cost accounting has been lodged with the administrative court. The proceeding is still open.
11 The contract is available, however the NRA is still investigating its terms.
12 Actual price to be determined by the NRA by the end of 2000.

Table 4: Availability and economic conditions of shared access to the local loop, August-September 2000

	Availability	Lines for which LLU is operational	Operators with agreements in place	Economic conditions		
				Incumbent's internal price	Price to OLOs	Pricing methodology
B	No (from 01.01.01)	-	-	-	-	-
DK	Yes, since 01.07.00, but not yet operational	None	None	n.a.	n.a.	n.a.
D	No	-	-	-	-	-
EL	No	-	-	-	-	-
E	No (from 01.01.01)	-	-	-	-	-
F	No (from 01.01.01)	None (trials under way)	None (experimental licences granted)	Under discussion	Under discussion	LRIC
IRL	No	-	-	-	-	-
I	No	-	-	-	-	-
L	No	-	-	-	-	-
NL	Under discussion	-	-	-	-	-
A	No	-	-	-	-	-
P	No	-	-	-	-	-
FIN	Under discussion	-	-	-	-	-
S	No	-	-	-	-	-
UK	Under discussion	-	-	-	-	-

Legend: "n.a." = information not available; "-" = not applicable; OLOs = other licensed operators; LRIC = long-run incremental costs.

Table 5 Availability and economic conditions of high-speed bitstream access, August-September 2000

	Availability	Operators with agreements in place	Economic conditions	
			Connection	Monthly rental
B	No (from 01.01.01)	-	-	-
DK	Yes, since 01.07.98	None	n.a.	n.a.
D	Yes (retail ADSL, since 04.1999)	n.a.	ADSL wholesale prices are the same as retail prices for large users	
E	Yes (wholesale ADSL, since 15.09.00)	18	€90.15 (256 kbit/s UBR) €90.15 (256 kbit/s SBR) €150.2 (512 kbit/s SBR) €306.52 (2 Mbit/s SBR)	€24.04 (256 kbit/s UBR) €30.05 (256 kbit/s SBR) €153.26 (512 kbit/s SBR) €306.52 (2 Mbit/s SBR)
F	Under discussion	None (experimental licences granted)	-	-
IRL	No (planned for 04.2001)	-	-	-
I	Yes (wholesale ADSL, since 01.2000)	22	Wholesale: €129.11(640 kbit/s) Retail: €158.84 (640 kbit/s)	Wholesale: €13.58 Retail: €75.32
NL	Yes (retail ADSL, since 07.2000)	None	Wholesale/Large users: €251.02 (500 kbit/s, 1 Mbit/s) Consumers: €158.92 or €294.96 (500 kbit/s, 1 Mbit/s)	Wholesale/Large users: €19.31 (500 kbit/s); €25.10 (1 Mbit/s) Consumers: €22.69 (500 kbit/s); €27.23 (1 Mbit/s)
A	Yes (wholesale ADSL), since 27.06.00	Approx. 12 ISP[13]		Various fees up to a maximum of €27.62[14]
FIN	Yes, but not mandatory	Few operators	n.a.	n.a.
S	Yes, but not mandatory	None	n.a.	n.a.
UK	Yes (retail ADSL), since 06.2000[15]	Approx. 70	Wholesale/Large users: €426.06 (500 kbit/s, 1 Mbit/s, 2 Mbit/s) Consumers: €245.81(500 kbit/s)	Wholesale/Large users: €114.7 (500 kbit/s); €141.8 (1 Mbit/s); €168.87 (2 Mbit/s) Consumers: €57.35 (500 kbit/s)

Legend: "n.a." = information not available; "-" = not applicable; UBR = unspecified bit rate; SBR = statistical bit rate.

High-speed bit stream access is not available in EL, L and P.

13 As of July 2000.

14 This amount is normally divided between the alternative operator/ISP and the consumer according to the specific end user pricing scheme. Different prices to new entrants and final users.

15 The NRA is investigating complaints that BT is engaging in cross-subsidy and discrimination in favour of its own service provider.

1. QUALITY OF SERVICE FOR PUBLIC FIXED VOICE TELEPHONY

This section provides information on the quality of voice telephony services offered by the incumbent operators. It concerns the indicators listed in Annex III to the New Voice Telephony Directive (98/10/EC). A short description of these indicators is given in the heading of each table. For a more formal definition, reference should be made to ETSI ETR 138, 1994.

The information has been provided by the national regulatory authorities (NRAs). The information for 1998 is taken from the Fifth Report, which was based on information made available by the Member States.

For Germany, most of this information is still not available. Decision 169/1999 of the regulatory authority laid down the rules for the application and interpretation of ETSI ETR 138. Given that the measurement period is one year and that the first complete results will cover the period 1.1.2000-31.12.2000, the relevant information will not be available before the end of 2000. Some data are also missing for the other Member States, as indicated on a case-by-case basis below each table.

Information collected by the Member States may be based on standards which differ from the ETSI definitions. The information given in Table 6 to Table 14 is therefore **not comparable** across countries.

In these tables, the following abbreviations are used:

w. days = working days

c. days = calendar days

w. hours = working hours

aver. = on average

sec. = seconds

Q1 = Jan-Mar.

Q2 = Apr.-June

Q3 = July-Sep.

Q4 = Oct.-Dec.

N/A = information not available

Table 6: Supply time for initial connection (see ETSI ETR 138. July 1994)

Expressed:
- either in terms of working days/hours between valid contract and operational connection
- or as the percentage of orders met within a specified time-limit

	Jan.-June 1998	July-Dec. 1998	Jan.-June 1999	July-Dec. 1999	Jan.-June 2000
B	95.8% within 5 w. days		95.5% within 5 w. days	94.5% within 5 w. days	95.7% within 5 w. days
DK	N/A		N/A	3 w. days[16]	N/A
D	N/A		-99.3% within 10 w. days -99.6% within 15 w. days -99.8% within 20 w. days	-99.5% within 10 w. days -99.7% within 15 w. days -99.8% within 20 w. days	N/A
EL	5 w. days aver.		5 w. days	5 w. days	5 w. days
E	N/A		5.1 c. days	5.6 c. days	5.0 c. days
F	N/A		5.7 w. days[17]		N/A
IRL	9 w. days aver.[18]		10 c. days	10 c. days	7 c. days
I	8 c. days aver.	9 c. days aver.	9 c. days	10 c. days	9 c. days
L	N/A		<7 w. days aver.	Existing line: 3.3 w. days; new line: 15.7 w. days	N/A
NL	10-15 w. days aver. (80% within 21 days)		98% within 1 month		N/A
A	N/A		5.8 w. days aver.[19]	100% within 12.9 w. days[20]	N/A
P	N/A		5 w. days aver.	6 w. days aver.	5 w. days aver.
FIN	4.7 w. days aver.		2.6 w. days		N/A
UK[21]	Q1: BT: 97.8%	Q2: 97.4 %	Q3: 97.2%	Q4: 97.3%	Q1: 97.6%	Q2: 98.1%	Q3: 96.7%	Q4: 96.2%	N/A
	Kingston: 99.8%	100 %	99.9%	99.8%	99.9%	100%	99.8%	99.6%	

Information not available for Sweden.

16 October-December 1999.

17 Average time expressed in working days measured from the date on which the connection request is lodged with the sales office to the date on which the line is installed.

18 January-November 1998.

19 Figure for June 1999. Take-over of existing connection not included. No separation between requests for connection "as soon as possible" and "on agreed date".

20 Figure for October-December 1999, excludes take-overs.

21 Percentage of orders completed by the contractual date.

Table 7: Fault rate per access line (see ETSI ETR 138. July 1994)

Expressed as the number of valid faults reported per 100 access lines

	Jan.-June 1998		July-Dec. 1998		Jan.-June 1999		July-Dec. 1999		Jan.-June 2000
B	4.7				4.1		3.9		3.4
DK	N/A				N/A		15[22]		
EL	27.9				17				N/A
E	N/A				6.48		8.9		8.2
F	6.4				6.5				N/A
IRL	12[23]				14		16		15
I	15.6		16.8		16.2[24]		18.2[24]		17.4[24]
NL	2.7				3.8				N/A
A	6.2				6.7[25]				N/A
P	N/A				5.2		11.2		2.3
FIN	8.4				7 (estimate)				N/A
S	N/A				Approx. 10		< 11		N/A
UK[26]	Q1: BT: 4.0	Q2: 3.7	Q3: 3.6	Q4: 4.1	Q1: 4.0	Q2: 3.7	Q3: 4.0	Q4: 4.6	N/A
	Kingston: 3.4	3.3	2.7	3.4	3.2	3.0	3.4	3.4	

Information not available for Luxembourg.

22 Figure for October-December 1999.
23 January-November 1998.
24 Valid and invalid faults.
25 Including extraordinary events.
26 Customer reported faults (residential).

Table 8: Fault repair time (see ETSI ETR 138. July 1994)

Expressed:
- either in terms of working hours between fault report and service restored
- or as the percentage of fault repairs completed within a specified period

	Jan.-June 1998	July-Dec. 1998	Jan.-June 1999	July-Dec. 1999	Jan.-June 2000
B	90% within 2 w. days		89.8% within 2 w. days	89.6% within 2 w. days	92.0% within 2 w. days
DK	N/A		N/A	99% within 75 w. hours[27]	N/A
D	N/A		85.5% within 24 hours	86.3% within 24 hours	N/A
EL	21 w. hours aver.		90.5% within 24 hours		N/A
E	N/A		9.6 w. hours	8.7 w. hours	8.8 w. hours
F	- Business: 16.5 w. hours. - Residential: 23.1 w. hours		84.4% within 2 w. days		N/A
IRL	16 w. hours aver.[28]		24 hours	27 hours	31 hours
I	94.9% within 2 c. days	94.1% within 2 c. days	95.5% within 2 c. days	88.5% within 2 c. days	90.8% within 2 c. days
L	N/A		967% within 16 w. hours	94.9% within 16 w. hours	N/A
NL	5 w. hours aver.		1.8 w. days		N/A
A	N/A	5.9 w. hours aver.[29]	95.8% of faults repaired within 24 w. hours		N/A
P	N/A		90.2% within 12 w. hours	88.9% within 12 w. hours	93.2% within 12 w. hours
FIN	71.4% within 1 w. day		74.1% within 1 w. day		N/A
S	55% within 8 w. hours		Approx. 85% within 8 w. hours. Approx. 97% within 16 w. hours	Approx. 75-78% within 8 w. hours. Approx. 90-93% within 16 w. hours	N/A
UK[30]	Q1: BT: 78.3%	Q2: 85.3%	Q3: 82.4%	Q4: 79.9%	Q1: 83.0%	Q2: 82.4%	Q3: 78.2%	Q4: 83.0%	N/A
	Kingston: 99.2%	98.3%	99.0%	98.3%	98.8%	98.4%	98.6%	99.1%	

27 October-December 1999.
28 January-November 1998.
29 December 1998.
30 Percentage of faults cleared in target time (BT: 9 working hours, Kingston: end of next working day).

Table 9: Unsuccessful call ratio (see ETSI ETR 138. July 1994)

Expressed in percentages, unless specified otherwise

	Jan.-June 1998	July-Dec. 1998	Jan.-June 1999	July-Dec. 1999	Jan.-June 2000
B	National calls: 0.2 Intra-EC calls : 5.1 Extra EC calls: 9.9		National: 0.3 Intra-EC: 8.4 Extra-EC: 16.3	National: 0.5 Intra-EC: 10.4 Extra-EC: 17.8	National: 0.4 Intra-EC: 20.4 Extra-EC: 24.2
DK	N/A		N/A	[31]National: 0.3 Intra-EC: 2.2 Extra-EC: 5.2	N/A
E	N/A		National: 0.2 International: 1	National: 0.1 International: 0.5	National: 0.1 International: 0.5
F	0,1		0.1		N/A
IRL	N/A		Local: 0.5 National: 0.8 (STD)	Local: 0.6 National: 1.6 (STD)	Local: 0.7 National: 2.0 (STD)
I	Local calls: 0.5 National calls: 1	Local: 0.4 National:0.7	Local: 0.3 Long-distance:0.8	Local: 0.3 Long-distance: 1.1	Local: 0.3 Long-distance: 0.9
L	N/A		National calls: 0.5	National: 0.8	N/A
NL	National calls: <1		National: 2.4 Average for all types of calls: 2.1		N/A
A	N/A		0.4		N/A
P	N/A		National calls: 0.8	0.5	0.5
FIN	National calls: 0.6		National: 0.7		N/A
UK	0.5[32]		N/A	N/A	N/A

Information not available for Greece or Sweden.

[31] October-December 1999.

[32] Figure given for BT (no equivalent Comparable Performance Indicator measure).

Table 10: Call set up time: interval of time before busy tone/ringing tone/answer signal is received by the calling party (see ETSI ETR 138. July 1994)

Expressed:
- in seconds
- as an average for all types of call, unless specified otherwise

	Jan. –Dec. 1998	Jan.-June 1999	July-Dec. 1999	Jan.-June 2000
B	N/A	National calls: 4.4 Intra-EC calls : 6+2.4 Extra-EC calls: 6+ 3	National: 4.6 Intra-EC: 6+2.5 Extra-EC: 6+ 3.1	National: 4.4 Intra-EC: 6+ 2.5 Extra-EC: 6+ 3.2
DK	N/A	N/A	National calls: 0.7[33]	
EL	79.5% < 2 sec 85% < 4 sec 92% < 6 sec	N/A	N/A	N/A
F	N/A	1.2		N/A
I	All types of call: 0.4 sec	0.4 sec	0.4 sec	0.4 sec.
L	N/A	National calls: 0.4 Intra-EC calls: 1.8 Extra-EC calls: 3.3	National: 0.4 Intra-EC: 1.9 Extra-EC: 2.9	N/A
NL	N/A	Local calls: 0.3 Long-distance calls: 1.0		N/A
A	N/A	0.4 aver.		N/A
P	N/A	91.4% within 4 sec.	90.2% within 4 sec.	88.1% within 4 sec.

Information not available for Spain, Ireland, Finland, Sweden or the UK.

[33] October-December 1999.

Table 11: Response time for operator services: time <u>in seconds</u> from when the last address digit is dialled to when the human operator answers (see ETSI ETR 138. July 1994)

	Jan.-Dec. 1998	Jan.-June 1999	July-Dec. 1999		Jan.-June 2000
B	17.8 aver.	20.1	8.3		3.3
EL	90% within 20 sec.	20	17		16
E	N/A	6.1	N/A		N/A
F	19.11 aver.	N/A	N/A		N/A
IRL	95% within 15 sec.[34]	N/A	31		17
I	99.8% within 20 sec.	99.5% within 20 sec.	98.5% within 20 sec.		94.2% within 20 sec.
L	N/A	20 aver.	33		N/A
NL	N/A	10. 3			N/A
A	N/A	26.0			N/A
P	N/A	11.4	12.7		N/A
UK[35]	89.9 - 1.8% within 15 sec.[36]	Q2: 80.1% within 15 sec.	Q3: 88.2% within 15 sec.	Q4: 96.4% within 15 sec.	Q1: 91.4% within 15 sec.

Information not available for Denmark, Finland or Sweden.

34 January-November 1998.

35 Figures given for BT.

36 No equivalent Comparable Performance Indicator measure.

Table 12: Response time for directory enquiry services (as for operator services)

Expressed in seconds

	Jan.-June 1998	July-Dec. 1998	Jan.-June 1999	July-Dec. 1999	Jan.-June 2000
DK	N/A		N/A	[37]Nat. enqu.: 9.5 Intern. Enqu.: 6.1	N/A
EL	90% within 15 sec.		15	15	15
E	N/A		5.8	N/A	N/A
F	14 aver.		N/A	N/A	N/A
IRL	85% within 15 sec.[38]		N/A	15	9
I	69.7% within 15sec.	76.6% within 15 sec.	69.3% within 15 sec.	65.3% within 15 sec.	60.4% within 15 sec.
L	N/A		17 aver.	32	N/A
NL	N/A		National enquiries: 10.3 International enquiries: 10.6		N/A
A	N/A		53.1% within 20 sec.[39]		N/A
P	N/A		16.9	14.0	4.3
FIN	12 aver.		5.2[40]		N/A
UK[41]	91.0% - 91.4% within 15 sec.[42]		Q2: 90.3% within 15 sec.	Q3: 95.3%	Q4: 94.2%	Q1: 94.2% within 15 sec.

Information not available for Belgium or Sweden.

37 October-December 2000.
38 January-November 1998.
39 For free-of-charge directory enquiry services.
40 For number service only.
41 Figures given for BT.
42 No equivalent Comparable Performance Indicator measure.

Table 13: Proportion of coin and card operated public pay-telephones in working order (see ETSI ETR 138)

Expressed in percentages

	Jan.-June 1998	July-Dec. 1998	Jan.-June 1999	July-Dec. 1999		Jan.-June 2000
B	84.5		96.5	97.5		92
EL	96		N/A	N/A		N/A
E	N/A		98.5	97.2		98.0
F	90.9		99.0[43]			N/A
IRL	95[44]		92	92		92
I	0.9 = Hours of non availability of service as % of hours of availability	1.1= Hours of non availability of service as % of hours of availability	0.9= Hours of non availability of service as % of hours of availability	1.3 = Hours of non availability of service as % of hours of availability		1.2= Hours of non availability of service as % of hours of availability
L	N/A		99.99	> 97		N/A
NL	N/A		96			N/A
A	N/A		98.5			N/A
P	N/A		99.3	99.2		99.0
UK[45]	95.3-96.6[46]		Q2: 95.6	Q3: 97.0	Q4: 95.5	Q1: 96.6

Information not available for Denmark, Finland or Sweden.

43 Calculated on the basis of the number of public pay telephones out of order for at least 24 consecutive hours (0.92% on average in 1999).

44 January-November 1998.

45 Figures given for BT.

46 No equivalent Comparable Performance Indicator measure.

Table 14: Billing accuracy: number of billing complaints received per 1 000 bills

(ETNO definition)

	Jan.-June 1998	July-Dec. 1998	Jan.-June 1999	July-Dec. 1999	Jan.-June 2000
B[47]	0.07		0.09	0.09	0.09
EL	N/A		1.1	1	0.9
E	N/A		1.4	1.7	2.6
F	N/A		0.4[48]		N/A
I	N/A	N/A	0.5	0.4	0.4
L	N/A		0.5	0.3	N/A
NL	N/A		0.3		N/A
A	0.6[49]		0.5		N/A
P	N/A		0.4	0.3	0.2
FIN	3.9		1.9		N/A
UK	BT: 2.0 Kingston: 1.1 (Q1) 2.2 (Q2)	2.4 0.7 (Q3) 0.6 (Q4)	Q1: 2.3 0.6	Q2: 2.0 0.5	Q3: 1.7 0.2	Q4: 1.9 0.3	N/A

Information not available for Denmark, Ireland or Sweden.

47 Disputed bills and complex questions about billing.

48 Number of written or oral complaints received which resulted in the opening of a file in the customer relations department per 1 000 direct exchange lines.

49 Including ISDN services.

2. ITEMISED BILLING

This section examines the level of itemisation of the bills issued by the main telecommunications operators in the fifteen Member States.

The figures and information are taken from a study carried out by Cullen International for the Commission. The data, collected from primary sources (i.e. directly from telecommunications operators) give the situation in August 2000.

The current EU framework (Article 14 of the New Voice Telephony Directive 98/10/EC) requires a basic level of itemised billing at no extra charge to the user, but leaves it to the national regulatory authorities to lay down the basic level of itemised bills.

While no definition is provided by the Directive, for the purposes of this study, an itemised bill is considered to be a bill that includes the following details for every call: the full/partial number of the called party, the date of the call, the starting or ending time of the call, the duration of the call, and the price of the call.

In principle, in order to allow users to verify and control the charges incurred in using the network, this itemisation should extend to local calls. Situations where this is not the case have been indicated in the table.

A standard bill is the basic bill that a customer receives by default from his/her operator at no charge. The table distinguishes between two types of non-itemised standard bills:

– bills including aggregate information (calls listed per category as a total, total duration of connection and/or total cost) for each of the main categories of fixed services, i.e. national calls (with distinction between local calls, regional calls and long-distance calls), international calls, calls to mobile, and data/Internet connections.

– bills including no detailed information, but only the total price of the calls made (with no distinction between national calls, international calls, calls to mobile and data/Internet connections).

The standard bill may also contain itemised information on a certain type of calls (e.g. international calls) and aggregate information on other calls. This is indicated in the table.

The charges mentioned in the table do not include VAT.

Table 15: Standard and itemised bills issued by the main telecommunications operators in the Member States

		Information included in the standard bill			Itemised bill (not available/ free of charge as standard / free of charge on request/available at € per month)
		No detailed information	Aggregate information for each category of service	Additional information	
B	Incumbent (fixed voice telephony)		X	International calls itemised	€0.4 for details on calls > €0.25 €1.53 for details on all calls
	Main new entrant (fixed voice telephony)		X		Free of charge on request
	Main mobile operator		X	International calls itemised	Free of charge on request
DK	Incumbent (fixed voice telephony)		X	Calls to the Internet itemised[50]	From €0.67[51] to €1.68 depending on number of calls listed [52]
	Main new entrant (fixed voice telephony)				Free of charge as standard
	Main mobile operator		X		€0.013 per call + €6.7 one-off fee[53]
D	Incumbent (fixed voice telephony)		X		Free of charge on request
	Main new entrant (fixed voice telephony)		X		Free of charge on request
	Main mobile operator		X		Free of charge on request
EL	Incumbent (fixed voice telephony)	X			€0.29[54] + €0.147 per page[55]
	Main new entrant (fixed voice telephony)	N/A	N/A	N/A	N/A
	Main mobile operator				Free of charge as standard
E	Incumbent (fixed voice telephony)				Free of charge as standard (but local calls are not itemised) [56]
	Main new entrant (fixed voice telephony)				Free of charge as standard
	Main mobile operator				Free of charge as standard

50 Calls to the Internet are not itemised on the bill, but details can be obtained free of charge on a CD-ROM.

51 Exchange rate used: DKK 1 = €0.1343.

52 A one-off detailed list of calls is available for €6.7.

53 The itemised bill is sent quarterly to the subscriber.

54 Exchange rate used: GRD 1 = €0.002948.

55 For local calls: only those lasting more than 6 units are itemised.

56 Only aggregate information is given on local calls (including data/Internet connections). Details on local calls are available at €3.00 (plus a one-off subscription fee of €12), but details on one selected local number (e.g. that of an Internet Service Provider) are available free of charge on request.

		Information included in the standard bill			Itemised bill (not available/ free of charge as standard / free of charge on request/available at € per month)
		No detailed information	Aggregate information for each category of service	Additional information	
F	Incumbent (fixed voice telephony)				Free of charge as standard
	Main new entrant (fixed voice telephony)				Free of charge as standard
	Main mobile operator	X[57]			€2.3 (free with some tariff options)
IRL	Incumbent (fixed voice telephony)		X		€1.5[58]
	Main new entrant (fixed voice telephony)				Free of charge as standard
	Main mobile operator				Free of charge as standard
I	Incumbent (fixed voice telephony)		X		Free of charge on request
	Main new entrant (fixed voice telephony)				Free of charge as standard
	Main mobile operator		X		Free of charge on request
L	Incumbent (fixed voice telephony)		X		€2.2
	Main new entrant (fixed voice telephony)		X		Free of charge on request
	Main mobile operator		X		€2.2
NL	Incumbent (fixed voice telephony)		X		[59]€0.02 per call
	Main new entrant (fixed voice telephony)		X		€2.3 [60]
	Main mobile operator		X		Free of charge on request
A	Incumbent (fixed voice telephony)		X		€3.63 plus €0.0073 per call listed
	Main new entrant (fixed voice telephony)				Free of charge as standard
	Main mobile operator		X		€2.13
P	Incumbent (fixed voice telephony)				Free of charge as standard (but local calls are not itemised)
	Main new entrant (fixed voice telephony)		X	List of the 10 most called numbers[61]	Free of charge on request
	Main mobile operator				Free of charge as standard

[57] A standard bill including aggregate information will be provided by default free of charge starting from end-2000.

[58] A one-off detailed list of calls is available at €5. Local calls costing less than €0.12 are not itemised.

[59] Calls to the Internet are considered as calls to normal geographic numbers and are therefore not listed separately.

[60] No itemised billing for calls costing less than €0.22.

[61] Listed as top 10 by number, top 10 by destination, top 10 by duration, and top 10 by amount.

		Information included in the standard bill			Itemised bill (not available/ free of charge as standard / free of charge on request/available at € per month)
		No detailed information	Aggregate information for each category of service	Additional information	
FIN	1-Incumbent (fixed voice telephony)		X		Free of charge on request
	2-Incumbent (fixed voice telephony)		X	Long distance calls itemised[62]	€3 + €8 one-off fee[63]
	Main new entrant (fixed voice telephony)		(Third-party billing)	(Third-party billing)	€ (variable) [64]
	Main mobile operator	X			€1.7
S	Incumbent (fixed voice telephony)		X		Free of charge on request[65] (but local calls are not itemised)
	Main new entrant (fixed voice telephony)	X			Free of charge on request, (but local calls are not itemised)
	Main mobile operator		X		€0.936 [66]
UK	Incumbent (fixed voice telephony)				Free of charge as standard[67] (but only for calls over €0.64)
	Main new entrant (fixed voice telephony)				Free of charge as standard[68] (but only for calls over €0.83)
	Main mobile operator[69]		X		€2.84 maximum[70]

62 Through a special "101-long-distance call agreement" it is possible to have long-distance calls itemised free of charge on request.

63 A one-off detailed list of calls is available for €14.

64 Telia Finland does not invoice any fixed network service directly to its customers. The incumbent local operators offer third party billing services and carry out the billing for Telia Finland's fixed services. In doing so, they can impose a certain charge per customer.

65 Calls to ISPs are made using a free phone number (0200) which is not specified on the bill.

66 Exchange rate used: SEK 1 = €0.1170.

67 As standard, only calls over €0.64 are itemised, those below €0.64 are summarised.

68 As standard, only calls over €0.83 are itemised, those below €0.83 are summarised.

69 This information concerns the incumbent's mobile subsidiary (which is not the main mobile operator in terms of number of subscribers).

70 Itemised billing is charged at various rates ranging from no charge for corporate customers to a maximum of €2.84 per month for certain types of residential customer. Exchange rate used: GBP 1= €1.73.

3. THE NET COST OF UNIVERSAL SERVICE PROVISION IN ITALY AND FRANCE

Italy and France are the only two Member States were US funding mechanisms were activated in 1999 and contributions levied on operators.

Table 16: Net cost of universal service provision in 1999

Overall net cost *in € M*	**France**	**Italy**
Non profitable areas / customers	237	74
Public payphones	29	34
Directory / enquiries[71]	0	0
Social tariffs[72]	0	0
Indirect and intangible benefits[73]	0	-46
Total net cost	265	62
Net cost per line[74], *in €*	**France**	**Italy**
Non profitable areas / customers	7.0	2.8
Public payphones	0.8	1.3
Directory / enquiries	0	0
Social tariffs	0	0
Indirect and intangible benefits	0	-1.8
Total net cost per line (€)	7.8	2.4

71 In France, this component is profitable but the net surplus is not deducted from the overall result; therefore the net cost appears to be 0; in Italy, the regulator considers that the enquiries services cold not be deemed universal in 1999, and decided not to take the net cost claimed by Telecom Italia into account.

72 As regards France, the Commission assumes that, like in 1998, there will not be any such social component in the end-evaluation for 1999, since the social scheme has been practically been introduced in 2000 only.

73 According to Directive 97/33/EC, the intangible benefits accruing to the universal service provider should be substracted from the net cost of universal service.

74 The figures presented in this table are simply the division of the figures presented in the table above by the number of fixed lines (source : France, ART's 1999 annual report ; Italy : Telecom Italia's 1999 annual report)

TARIFFS

Table 17 gives an overview of the type of regulation applicable in the fifteen Member States to the end-user tariffs for fixed public voice telephony services of operators considered as having significant market power (SMP). It also indicates the period of public notice which the national regulatory authorities require operators with SMP in the fixed public voice telephony market to give before implementing tariff changes (as required by Article 17(5) of the New Voice Telephony Directive 98/10/EC).

The table indicates the dates on which the latest report on the evolution of tariffs (required by Article 3(2) of the New Voice Telephony Directive 98/10/EC) was published in each of the Member States, as well as the assessment, by the Member States, of whether tariff rebalancing has been completed (as required by Directive 90/388/EEC, as amended by Directive 96/19/EC).

The information given in Table 17 is based on data made available by the national regulatory authorities (referring to the situation on 1 August 2000), with the exception of the column concerning the type of regulation of end-user voice telephony tariffs of SMP operators.

Greece has been granted an additional period to implement full competition, and is not required to complete tariff rebalancing until the end of 2000.

Table 17: Fixed public voice telephony tariffs of SMP operators: rebalancing, regulation, period of public notice before the implementation of tariff changes, and report on the evolution of tariffs

	Tariff rebalancing completed (according to MS)	Type of regulation of end-user voice telephony tariffs of SMP operators	Period of public notice before the implementation of tariff changes by operators with SMP in the fixed public voice telephony market	Date of publication of the last report on the evolution of tariffs
B	No	Price cap	Tariff increase: 15 days Tariff decrease: 1 day	June 2000
DK	No[75]	Price cap	14 days on top of the notice of termination of contract[76]	August 2000
D	No[77]	Price cap/NRA approval	1 month	June 2000
EL	No[78]	Ex ante approval by the NRA under ONP conditions	1 month	No publication
E	Yes	Price cap	Under price cap: 10 days Under maximum tariff regime: 15 days	Incl. in NRA's 1999 annual report
F	Yes	Ex ante approval by the Ministry under ONP conditions	8 days	Incl. in NRA's 1999 annual report
IRL	No[79]	Price cap	21 days	Incl. in NRA's annual and quart. reports
I	Yes	Price cap/NRA approval	90 days	Incl. in NRA's July 2000 annual report
L	No	Freely set by operator	No period set	No publication
NL	Yes	Price cap/NRA approval	2 weeks	Incl. in NRA's May 2000 annual report
A	Yes	Ex ante approval by the NRA under ONP conditions	2 months	Ongoing on the NRA's web site[80]
P	No	Ex ante approval by the Ministry under ONP conditions	5 days	1998[81]
FIN	Yes	Freely set by operator[82]	No period set[83]	April 2000

75 But, according to the NRA, the price is estimated to be very close to a rebalanced tariff.

76 Except for tariff decreases.

77 According to DT AG, its end user tariffs have still not been fully rebalanced. However, the NRA is not preventing DT from eliminating any remaining access deficit by further rebalancing its end-user tariffs.

78 Tariff rebalancing is nearing completion.

79 Progressive rebalancing is being permitted through the price cap. Eircom may increase local access rentals at the rate of up to CPI+2 each year during the period 2000-2003.

80 Report on market evolution every two years.

81 In 1999 and 2000 the NRA issued press releases on tariff changes that were implemented in each of those years.

82 Subject to the obligation of cost orientation for local calls.

83 Users notified of tariff changes prior to entry into force.

S	No	Price cap	No period set (in practice 1 month for tariff increase)	June 2000
UK	No[84]	Price cap	28 days (1 day when market determined as competitive)	April 2000[85]

84 Line rental income is not yet sufficient to cover fully allocated costs. However, the NRA believes that BT's residential line rental charge now covers the incremental cost of providing the line. There are no regulatory constraints preventing BT from further rebalancing its tariffs.

85 Phone bill of a typical residential customer.

COST ACCOUNTING

This section supplements the chapter on cost accounting systems.

Table 18 shows the cost accounting systems in place for interconnection with the networks of SMP operators and the deadlines for implementation by the incumbent operators of cost accounting systems based on current costs, as recommended by the Commission[86]. These data have been provided by the Member States and refer to the situation on 1 August 2000.

Table 19 provides information regarding the verification of compliance with the cost accounting system required by the New Voice Telephony Directive 98/10/EC (Article 18) and the Interconnection Directive 97/33/EC (Article 7(5)). The data indicate:

- whether a competent and independent body has carried out the verification of compliance with the cost accounting system for both voice telephony and interconnection,
- the last accounting year which has been verified,
- the year of the last publication of the statement of compliance, and
- whether relevant accounting information is made available by the NRA to interested parties on request.

The data have been provided by the Member States, and refer to the situation on 1 August 2000 (with regard to the last column on the availability of information) and September/October 2000 (with regard to the other columns).

The Commission has issued a Recommendation[87] providing guidance on the implementation of accounting separation and cost accounting systems by operators designated by their NRAs as having significant market power. Please refer to that for further information.

[86] Commission Recommendation of 8 January 1998 on interconnection in a liberalised telecommunications market (Part 1 – Interconnection Pricing), OJ L 73, 12.3.1998, p. 42.

[87] Commission Recommendation of 8 April 1998 on interconnection in a liberalised telecommunications market (Part 2 – Accounting separation and cost accounting), OJ L 141, 13.5.1998, p. 6.

Table 18: Current and planned cost methodologies for calculating interconnection charges

	Cost accounting system actually in place for interconnection by SMP operators		Deadline for implementation of a system based on current costs
	Cost base	Cost standard	
B	Historic[88]	FDC	2000
DK	Historic	FDC	31.12.2002 (LRAIC)
D	Forward looking	LRAIC	Implemented
EL	Historic	FDC	LRIC planned for 2001
E	Multi-standard	Multi-standard	31.7.2000
F	Historic[89]	FDC[89]	No deadline set
IRL	Historic	FDC	December 2000
I	Historic	FDC	1.1.2001
L	Historic	FDC	No deadline set
NL	Current	EDC[90]	Implemented
A	Current	FDC[91]	Implemented
P	Historic	FDC	No deadline set
FIN	Company specific[92]	Company specific[92]	No deadline set
S	Historic	AIC	No deadline set
UK	Forward looking/ current	LRIC + FDC	Implemented

Legend:

Cost base: historic, current, forward-looking

– Cost standard: AIC: average incremental costs
LRIC: long-run incremental costs
LRAIC: long-run average incremental costs
FDC: fully distributed costs
EDC: embedded direct costs

88 With regard to network assets, historic costs are converted into current costs.

89 Fully allocated historic costs, with significant forward-looking elements.

90 The deadline for the introduction of LRIC is 1.7.2001. Between 1.7.2000 and 1.7.2001 interim interconnection tariffs based on the tariffs of the previous one-year period (1999-2000) will apply.

91 Telekom Austria uses the FDC top-down model; the NRA uses the forward-looking LRAIC bottom-up model.

92 The NRA does not set interconnection charges for SMP organisations. Operators set their own prices. There are 50 SMP operators in Finland and their prices must be cost-based. Cost structures, prices and accounting systems vary between operators. The Ministry approved the operators' descriptions of their accounting systems on 11 February 1998.

Table 19: Verification of compliance with the cost accounting system

	Verification of compliance with the CAS by a competent and independent body			Statement concerning compliance	Relevant accounting information made available by the NRA to interested parties on request
	Voice telephony	Interconnection	Last accounts verified (accounting year)	Last publication	
B	Yes	Yes	Not available	Not published	Yes[93]
DK	Yes	Yes	1999	Not published	Yes
D	Yes	Yes	1998/1999	1999	Yes[94]
EL	No	No	-	Not published	Yes
E	Yes	Yes	1998	1999	Yes[94]
F	Yes	Yes	1998	Not published	No
IRL	Yes	Yes	1998/1999	1999	Yes
I	Yes	Yes	1998	Not published	No
L	No	No	-	Not published	No
NL	Yes	Yes	1999[95] - 1998/1999	1999[96]	Yes[94]
A	No	No	-	Not published	Yes
P	Yes	Yes	1998	1999	Yes
FIN	No[97]	No	-	Not published	No
S	Yes	Yes	1999	1999[98]	Yes[93]
UK	Yes	Yes	1999/2000	2000	Yes

93 Some NRAs/SMP operators only provide aggregated accounting information. Some NRAs/SMP operators do not provide this information in a dedicated form, but include it in their general reports.

94 The NRA does not provide accounting information that is considered confidential to third parties.

95 Voice telephony has been verified for accounting year 1999; interconnection for the period July 1998 - June 1999.

96 With regard to voice telephony, this refers to verification for accounting year 1998.

97 Finland does not require cost orientation for international or long-distance voice telephony calls, because it is considered that there is effective competition on those markets, but does require it for local calls < 2 Mbit/s. Verification of compliance may take place on an ad hoc basis but is not done systematically.

98 This refers to accounting year 1998.

1. CARRIER SELECTION (CS) AND CARRIER PRE-SELECTION (CPS)

Table 20:Availability of carrier selection and pre-selection by type of call

	Local calls		Long-distance calls		International calls		Calls to mobile		Calls to non geographic numbers	
	CS	CPS	CS	CPS	CS	CPS	CS	CPS	CS	CPS
B	No	No	Yes	Yes	Yes	Yes	Yes	No[99]	Yes[100]	No
DK	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
D	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No[101]
EL	No	No	No	No	No	No	No	No		
E	15.11.00	15.11.00	Yes	Yes	Yes	Yes	Yes	Yes	No	No
F	No	No	Yes	Yes	Yes	Yes	01.11.00	01.11.00	No	No
IRL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
I	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
L	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
NL	Yes	Yes[102]	Yes	Yes	Yes	Yes	Yes	Yes	No	No
A	Yes	Yes[102]	Yes	Yes	Yes	Yes	Yes	Yes	No	No
P	01.01.01	No	Yes	No[103]	Yes	No[103]	Yes	No[103]	No	No
FIN	No	No	Yes	Yes	Yes	Yes	No	No	No	No
S	Yes	Yes[102]	Yes	Yes	Yes	Yes	Yes	Yes	No	No
UK	Yes	No[104]	Yes	No[104]	Yes	No[104]	Yes	No[104]	Yes	No[104]

99 Implementation expected by the end of the year.

100 Except for 0800 numbers.

101 The facility was available until July 2000, then it was stopped on the basis of a multilateral agreement between operators (DT and new entrants) because it was considered to be network inefficient.

102 However, the area code must be dialled.

103 The facility is not available. However, an *ad interim* solution has been adopted for national calls, which allows carrier pre-selection using "autodiallers" from July 2000. Carrier pre-selection will be implemented in October in Lisbon and Porto, and is expected to be available by January 2001 in the rest of the country.

104 CPS is available from Kingston. BT has adopted an interim solution which allows carrier pre-selection using "autodiallers" from April 2000. Carrier pre-selection will be implemented in December 2000 for long-distance and international calls and in December 2001 for local calls and calls to mobile and other non-geographic numbers.

Table 20 shows the availability throughout the country of carrier selection and pre-selection facilities for different types of calls on 15 September 2000. The darker background indicates that these facilities are either already available or will be made available by the end of the year. In the latter case, the expected date of availability is indicated.

For a full understanding of the table it should be noted that:

- Greece has been granted a derogation until 01.01.2001 for the implementation of carrier selection and until 31.12.2002 for carrier pre-selection;
- Spain has been granted a derogation until 01.11.2000 for the implementation of carrier pre-selection;
- Portugal has been granted a derogation until 01.01.2002 for the implementation of carrier pre-selection.

Table 21 shows information about the conditions for the provision of carrier pre-selection:

- the delivery period, that is the number of days between the client's request and the activation of carrier pre-selection, as defined by incumbents' reference interconnection offers (RIOs), rules of procedure, industry standards, etc.; it is not a measurement of effective delivery periods,
- the maximum delivery period for the provision of number portability laid down by the NRA, if any,
- where available, the maximum number of requests for activation of number portability that the incumbent operator declared it was able to process per working day.

Table 21: Conditions for the provision of carrier pre-selection

	Delivery period	Max. delivery period set by NRA (availability for the consumer)	Max. number of activations per working day
B	5 working days[105]	No requirements by NRA. However, NRA approved Belgacom's RIO	1 200
DK	3-5 working days[106]	No requirements by NRA	5 000
D	Geographic numbers: approx.11 working days Non geographic numbers: 4-10 working days[107]	No requirements by NRA	No upper limit admitted
EL	Not applicable	Not applicable	Not applicable
E	n.a.	5 working days for calls to geographic and mobile numbers[108]	No records
F	n.a.	72 hours[109]	30 000 [109]
IRL	n.a.	5 days	No limit set
I	10 days[110]	10 days[111]	12 000
L	7 working days for Entreprise PT to accept the request + 5 days for activation[112]	No requirements by NRA. However, NRA approved Entreprise PT's addendum to the RIO	No records
NL	24 hours for residential customers, about 1 week for business customers because procedure is longer	No requirements by NRA	No records
A	n.a.	A delivery period of 3 days is considered normal. In the case of a longer delivery period economic measures affecting the operators are taken.	No records
P	n.a.	5 working days	No records
FIN	2-3 working days	No requirements by NRA	No records
S	n.a.	5-10 working days[113]	No limit set
UK	Interim CPS: 25 working days[114] Permanent CPS: 10-25 working days[115]	No requirements by NRA	Interim CPS: approx. 1 800 Permanent CPS: approx. 3 600[116]

Legend: "n.a." = not available

105 Delivery period set in Belgacom's reference interconnection offer.
106 As specified in the standard agreement on carrier pre-selection, which has been agreed on by the operators.
107 Industry forum AKNN.
108 CMT Decision, 29 June 2000.
109 ART Decision 99-490.
110 Telecom Italia's reference interconnection offer for the year 2000.
111 AGCOM Decision 4/00/CIR, 9 May 2000.
112 Delivery period set in the addendum to Entreprise des Postes et Télécommunications' reference interconnection offer for the year 2000,.
113 PTS Decision 2000:4.
114 For ICPS, 25 working days is the maximum period laid down in the Industry ICPS Process document for the access operator to validate a request for ICPS from the ICPS operator. However, as the ICPS operator can begin the service to the consumer and claim back the amount due from BT at a later date, there is effectively nothing to stop the ICPS operator providing service immediately upon customer request.
115 10 working days is the minimum cooling-off period laid down in the Industry CPS Process document between the access operator matching an electronic order for permanent CPS with a consumer reply slip and service activation. After 25 working days from receipt of either the order or the reply slip by the access operator, if order/reply slip matching is not possible, then the access operator is permitted to cancel the order.
116 Oftel's estimate of BT's daily number of activations.

2. NUMBER PORTABILITY (NP)

The following table shows the availability of number portability (for users wishing to keep the same number when they change operator) in September 2000. The table shows the availability of this facility for geographic numbers and non-geographic numbers (i.e. freephone numbers, premium-rate services and personal numbers).
The darker background indicates that this facility is available.

For a full understanding of the following table, it should be noted that Greece and Portugal have been granted the same derogation periods as for carrier pre-selection.

Table 22: Availability of operator number portability by type of number

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Geographic	Yes	Yes	Yes	No	Yes	Yes	Yes [117]	Yes	Yes	Yes	Yes	30.06.01	Yes	Yes	Yes
Non-geographic	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes [118]	30.06.01	Yes	Yes	Yes

Table 22 shows information about the conditions for the provision of number portability:

- the delivery period, that is the number of days between the request from the client to switch operators and the activation of NP, as defined by incumbents' reference interconnection offers, rules of procedures, industry standards, etc.,
- the maximum delivery period for the provision of number portability laid down by the NRA,
- where available, the maximum number of requests for activation of number portability that the incumbent operator declared it was able to process per working day.

[117] Implementation started in July 2000 and is expected to be completed by the end November 2000.
[118] Except for numbers which do not conform to the Numbering Plan.

Table 23: Conditions for the provision of number portability

	Delivery period	Max. delivery period set by NRA	Max. number of activations per working day
B	n.a.	4 day[119]s	No records
DK	For type I numbers (single lines): 3-5 working days if customer ID known, 8-10 working days otherwise For type II numbers (including multiple lines and non-geographic numbers): 8-10 working days if customer ID known 15-20 working days otherwise[120]	No requirements by NRA	No records
D	Geographic numbers: approx.11 working days Non-geographic numbers: 6-8 working days[121]	No requirements by NRA	No upper limit admitted
EL	Not applicable	Not applicable	Not applicable
E	Min. 3-5 days[122]	4 working days	300 single lines + 30 basic ISDN + 20 multiple PBX 40 non-geographic numbers
F	Set by bilateral agreements between operators	No requirements by NRA	No records
IRL	9 days	No requirements by NRA	No upper limit set
I	15 working days[123]	15 working days[124]	1100
L	n.a.	No requirements by NRA	No records
NL	5 working days[125]	No requirements by NRA	No records
A	n.a.	Geographic numbers: 7 days in case of unbundling of the line[126]. Non-geographic numbers: 3 days	No records
P	Not applicable	Not applicable	Not applicable
FIN	2-3 days[127]	No requirements by NRA	No records
S	N.a.	15/30 working days	No upper limit set
UK	5 working days	5-8 working days	No records

Legend: "n.a." = not available

119 Royal Decree, 16 March 2000.

120 *Rules and procedure for number portability*, Telecommunications Industry Association, Denmark.

121 Industry forum AKNN.

122 According to the technical specifications (CMT decision, May 1999), after receiving the request, the donor can propose a time of 3-5 days for starting the process of porting the number.

123 Telecom Italia's reference interconnection offer 2000

124 AGCOM Decision 7/00/CIR, 1 August 2000.

125 Standard agreed by the industry.

126 Otherwise the feasibility has to be confirmed within 3 days and a deadline has to be agreed.

127 Typical delivery period, as estimated by Finnish TAC.

RIGHTS OF WAYS

The following table gives an overview of access to public and private ways, facility sharing and access to sea cables.

Table 24: Rights of Way

	Access to public ways legally granted	Access to private ways legally granted	Fees imposed for the use of public ways	Mast sharing offered in practice	Duct sharing offered in practice	Collocation offered in practice	Access to sea cables
B	Yes	Yes	Yes	Yes	n.a.	n.a.	Yes
DK	Yes	Yes	No	Yes	n.a.	Yes	Yes
D	Yes	Yes	No	Yes	Yes	Yes	Yes
EL	Yes	Yes	n.a.	n.a.	n.a.	n.a.	Yes
E	Yes	Yes	n.a.	Yes	Yes	Yes	Yes
F	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IRL	Yes	Yes	Yes	Yes	Yes	n.a.	n.a.
I	Yes	Yes	Yes	Yes	n.a.	Yes	Yes
L	Yes	Yes	No	Yes	No	Yes	-
NL	Yes	Yes	Yes	Yes	n.a.	Yes	Yes
A	Yes	Yes	No	Yes	Yes	Yes	-
P	Yes	Yes	n.a.	Yes	Yes	Yes	Yes
FIN	Yes	Yes	No	Yes	Yes	Yes	Yes
S	Yes	Yes	n.a.	Yes	n.a.	No	n.a.
UK	Yes	Yes	No	n.a.	n.a.	n.a.	Yes

Legend: "n.a."= information not available; "-"= not applicable.

DATA PROTECTION

This section supplements the chapter on data protection.

It relates to the obligations that the Member States have to fulfil under Directive 97/66/EC concerning the processing of personal data and the protection of privacy in the telecommunications sector.

The information given in Table 25 and Table 26 is based on data provided by the national regulatory authorities.

Table 25 relates to the implementation of Articles 6(2), 7, 10 and 11 of the Directive. Article 6(2) provides that for the purposes of subscriber billing and interconnection payments, certain data may be processed up to the end of the period during which the bill may be lawfully challenged or payment may be pursued. Articles 7, 10 and 11 deal with the subscribers' right to receive non-itemised bills; the stopping of automatic call forwarding by a third party; and the charge, if any, for subscribers to be omitted from the directory.

Table 26 gives an overview of the availability and cost of various facilities relating to calling line identification, which are mandated by Articles 8 and 9 of the Directive.

Table 25: Data protection: storage of data and other provisions of the Data Protection Directive

	Maximum period permitted for the storage of billing data	Charge for subscribers to be omitted from the directory	Availability and cost of stopping automatic forwarding by a third party	Itemised billing	
				Possibility to receive non-itemised bills	Number of digits from the called number deleted
B	N/A	BEF 105	Free of charge	Yes	No rules exist
DK	5 years[128]	Free of charge	Free of charge	Yes	No deletion for private customers, two for business customers
D	80 days	Free of charge	Available[129]	Yes	Three last digits/complete itemisation on request
EL	N/A[130]	GRD 330/month	N/A	Yes	No deletion.
E	5 years	Free of charge	Free of charge	Yes	Defined number[131]
F	Not specified in the law[132]	FRF 15.26/month	Available[133]	Yes	Last four
IRL	N/A	Free of charge	N/A[129]	Yes	No deletion
I	N/A	Free of charge	N/A	Yes	Last three
L	Not specified in the law	Free of charge	Not available	Yes	Incumbent: no deletion; others: not defined
NL	Not specified in the law[134]	Free of charge	Free of charge	Yes	No deletion
A	Company specific[135]	Free of charge	Not available	Yes	Two
P	6 months	Free of charge	Free of charge	Yes	Four
FIN	Min. 3 months after maturity date of the bill; max 3 years after bill has been paid in full	Free of charge	Free of charge	Yes	Three last digits/complete itemisation in certain cases
S	3 years[136]	SEK 60 annual charge	Free of charge.	Yes	No deletion
UK	6 years[137]	Free of charge	Free of charge	Yes	No deletion

128 The end of the period during which the bill may be lawfully challenged or payment may be pursued.

129 Legislation forthcoming, mandating this facility to be offered free of charge.

130 According to the incumbent, traffic data may be stored for as long as the subscriber has the right to challenge his/her bill (currently six months).

131 To be specified in secondary legislation.

132 But, for France Télécom, a maximum period of one year has been set by the Commission nationale de l'informatique et des libertés.

133 Information given for France Télécom.

134 The forthcoming legislation on the protection of personal data states that data for billing purposes can be stored for a reasonable period.

135 According to the conditions stipulated in the contracts with the operators.

136 Period within which the bill must be paid, or it is timebarred.

137 Limitation period for contractual disputes.

Table 26 : Data protection: calling line identification (CLI)

	Availability and cost		Availability and cost for the called subscriber to:			Availability and cost to the organisation dealing with emergency calls of overriding the elimination of the presentation of the CLI
	For the calling user to eliminate the presentation of the CLI on a per-call basis	For the subscriber to request the service provider to (temporarily) override the elimination of the presentation of the CLI[138]	Eliminate the presentation of the connected line identification to the calling user	Prevent the presentation of the CLI of incoming calls	To reject incoming calls where the presentation of the CLI has been eliminated by the calling user	
B	Free of charge	Available	Free of charge	Free of charge	Available	Free of charge
DK	Free of charge	Not available	Free of charge	Free of charge	Free of charge	Free of charge
D	Free of charge	Not available	Not available[139]	Partially available[140]	Not available[139]	Free of charge
EL	N/A	N/A	N/A	N/A	N/A	N/A
E	Free of charge	Free of charge	Free of charge	Free of charge	Free of charge	Free of charge
F	Free of charge	Not available[141]	No connected line identification offered	Available by default[142]	Not available	Free of charge
IRL	Free of charge	Not available.	Free of charge	Free of charge	Not available	Free of charge
I	Free of charge	N/A	Free of charge	N/A	N/A	N/A
L	Free of charge	Not regulated	Free of charge	Not available	Not available	Free of charge
NL	Free of charge	Free of charge	Not available	Available	Not available	Free of charge
A	Free of charge	Available (€6.54 + 0.73 per day + €1.45 per identification)	Available: €6.54 (single payment)	Free of charge	Available from 4th quarter of 2000 (commercial price)	Available: €4.36 (single payment)
P	Free of charge	Not available	Free of charge	Free of charge	Not available[143]	Available
FIN	Free of charge	Free of charge[144]	Free of charge	Free of charge	Available	Available[145]
S	Free of charge	SEK 500 + SEK 50 per tracing[146]	Free of charge	Free of charge	Not available	Available[147]
UK	Free of charge	Free of charge[144]	Free of charge	Free of charge	Free of charge or £ 9.99 for 3 months (BT)[148]	Free of charge

138 For tracing malicious or nuisance calls

139 Legislation forthcoming, mandating this facility to be offered free of charge.

140 This facility is offered by a number of operators, but there is no legal obligation.

141 Regarding malicious and/or nuisance calls, France Télécom provides a service to its subscribers that allows the latter either to block so-called "secret calls" (i.e. calls for which the calling line identification is not presented) or to block calls marked with an "R" (i.e. calls from lines that are on a list established by the subscriber).

142 Information given for France Télécom, which only offers CLI upon subscription.

143 This facility will be offered from 2001.

144 Calling line identification available to law enforcement authorities.

145 Override category available, organisation pays installation costs.

146 Malicious call identification is ordered for two weeks at a charge of SEK 500 including 5 successful tracings. Extra tracings: SEK 50 each.

147 The charge is included in the general charge to the organisation dealing with emergency calls to receive information about subscribers from the operators.

148 Price for analogues services (for digital services, depending on the functionality of the terminal).

Annex 4

Commission assessment of implementation of the GATS by certain third countries

ANNEX III TO THE JULY 2000 COMMUNICATION TO THE 133 COMMITTEE ON THE PREPARATION OF GATS 2000

STATUS OF THE IMPLEMENTATION OF THE WTO/GATS COMMITMENTS AND REVIEW OF THE SITUATION IN THIRD COUNTRIES' TELECOMMUNICATIONS MARKETS

INTRODUCTION

The GATS agreement on basic telecommunications services took effect on 15 February 1998. For almost all OECD countries commitments started to take effect from that date, but for many other countries commitments only take effect at a later date, typically from year 2000 onwards. For additional information regarding specific WTO member countries' commitments see http://gats-info.eu.int/gats-info/gatscomm.pl/.

1. EU MEMBER STATES

The European Community and its Member States included virtually all telecom services in its schedule. The Community's telecommunications regulatory package provides a comprehensive framework covering and complying with all the WTO commitments of the European Community and its Member States. The package has been extensively transposed by Member States and Member States complying with the package also fulfil their WTO obligations, which have been in force since February 1998 (except for Greece, Ireland and Portugal which have phase-in periods for their commitments).

Information about the implementation of the European framework is available through a series of Implementation Reports established by the Commission. The latest of these, the Fifth Report, is available on the Commission's server at http://www.ispo.cec.be/.

2. OECD COUNTRIES

It is worth noting, however, that the individual commitments contained in the GATS telecommunications agreement represent a significant step towards an international harmonised system of telecommunications legislation now bound under international law.

Given the size and significance of their markets, the United States and Japan are profiled in the following sections.

1.1. United States

The US undertook commitments on virtually all telecommunications services but nevertheless retained a number of restrictions involving investment, conditions for market access, reciprocity-based procedures, and access to certain satellite sectors.

Foreign direct investment in common carrier radio licences is limited to 20% (indirect investment being allowed up to 100%), and there remains a market access restriction on satellite-based services, namely the monopoly of Comsat to link up with Intelsat and Inmarsat.

As regards indirect investment, market access still remains conditioned on the FCC's public interest review for the purpose of granting waivers of Section 310 restrictions on foreign indirect investment. These are linked to two 1997 FCC rulings (a general ruling on foreign participation in the US market, and a specific one on the satellite services market) to implement the commitments of the US in the GATS, involving a presumption that entry by carriers from WTO countries and by satellites licensed by WTO countries is pro-competitive, but including the retention of a 'public interest' criteria which can still be invoked to deny a licence to a foreign operator, such as "trade concerns", "foreign policy" and "very high risk to competition".

The US also took an exemption to the MFN principle for one-way satellite transmission of Direct to Home (DTH), Direct Broadcast Satellite (DBS) and digital audio services. The EU reserved its right to challenge this exemption as it applies to services which are part of the audio-visual commitments undertaken by the US in 1994 as a result of the Uruguay Round. Furthermore, market access for satellite based service providers remains an issue of EU concern. The FCC procedures for authorising foreign satellite systems to serve the US market are found to be time-consuming, burdensome, possibly discriminatory and, in any case, they do not create certainty of access for foreign service providers. European companies have complained about these problems.

The US telecommunications market is currently undergoing a heavy restructuring through mergers and acquisitions with Internet and media companies. This development also affect the European telecommunications market due to the heavy presence of US owned companies on this market. The results of this ongoing market concentration on competition and market developments remains to be seen. Nevertheless, it may expected that the US telecommunications market will remain highly competitive in view of the existing and also new market players. For example, the market share of AT&T, measured in total toll service revenues, continues to decrease, from 47.9 percent in 1996 to 44.5 percent in 1997. The market share of the providers such as MCI, Sprint and WorldCom have gradually increased to 19.4, 9.7 and 6.7 percent respectively, but growth has slowed or stagnated. Smaller carriers such as Pacific Gateway Exchange, Inc and Communications TeleSystems International continue to enter the market increasing market share from 17.0 to 19.8 percent between 1996 and 1997. Facilities-based services by new providers is apparently increasing, as competitive access providers 1.8 million fibre miles, an increase of 39% in 1997. Total telecommunications revenue increased by 20 percent in 1997 to $231 billion, the three most profitable sectors being local service ($108 billion), wireless service ($33 billion) and toll service ($89 billion).

1.2. Japan

Improvement of the situation regarding the granting of Type I and Type II licenses to foreign carriers has taken place during the last two years. Furthermore, Japan has introduced price cap regulation, liberalised international simple resale and allows the participation of EU carriers in the capital stock of Japanese carriers. As a result, Japan finds its GATS / WTO commitments to have been fully implemented.

However, while it is clear that the process of liberalisation has started in Japan, the Japanese market is still highly concentrated with only a few incumbent Japanese carriers. There are also important bottlenecks which should be removed such as interconnection – in particular on the cost orientation of interconnection rates -, rights of way and conditions related to universal service. These aspects continue to hinder competition in Japan and therefore prevent both consumers and service suppliers in Japan from the advantage of cheaper and better communications services.

The MPT has undertaken number of studies, some are still under way and are due to reach conclusion and implementation around 2000[1]. These studies cover universal service funding; LRIC (long range incremental cost for interconnection); number portability and carrier pre-selection. EU industry is therefore concerned that a truly effective regulatory system might not be in place until after two or more years after full competition in principle was introduced (with the WTO telecommunications agreement entry into force on 5 February 1998). All these elements confirm that the pace of adoption of pro-competitive regulatory measures by Japan remains far too slow.

Moreover, a clear re-balancing between the current over-regulation of non-designated carrier business in Japan and the enactment of a framework regarding the statutory duties for the Regulator where the promotion of competition should be clearly expressed, is still missing . For example, such over-regulation includes notification for MPT approval for all terms and conditions of new services and various changes. On the other hand, it would be necessary to see a the review of the *"designated carrier rules"*, the imposition of efficient pro-competitive safeguards on designated carriers (high NTT interconnection rates, and transparent rules on access to NTT ducts and poles in order to do away with current unfair conditions and exorbitant charges for NTT's competitors),.

To a large extent, some of these priority issues have been also identified by some other trading partners and by the OECD during the Peer Review on regulatory reform in Japan held in March 1999 in Paris.

1.3. Other OECD-countries

In addition to EU Member States all other OECD countries made a commitment on basic telecommunications – virtually all of them full commitments entering into force during 1998 - and most have made

1 MPT is due to submit a law on LRIC to the Diet in early March 2000.

commitments on value added services. Further to the EU Member States mentioned earlier, six European OECD countries' commitments include a phase-in date for some or all voice services (for Canada, the Czech Republic, Hungary and Korea the date is 2000, Poland gave a date of 2003, and Turkey a date of 2005, but in its new law has proposed to maintain the monopoly only until the end of 2003). The main type of limitation involves ownership restrictions (Canada, Japan, Korea, Mexico). Canada, for example, maintained its current limit on foreign carrier ownership of 46.7%, including a limit of 20% for direct ownership, in facilities-based suppliers. In some cases, such as Korea, the schedule included a degree of liberalisation, which exceeded that which had been announced domestically. But Korea continues to maintain a limit of 49% foreign ownership restriction and allows foreign participation in its flag carrier KT to an even more limited extent. Mexico maintains a duopoly for local and mobile services and does only permit 49% foreign ownership except for mobile services where no foreign ownership restrictions are applied.

2. NON-OECD COUNTRIES[2]

2.1. Overview

It has been estimated that in less than 15 years, developing countries have added more telephone lines than the world's industrialised countries (excluding the US) installed during the first 100 years after the telephone's invention (circa 1876).[3] Thus, although the situation is very varied from country to country, as a whole development remains very progressive.

63 non-OECD countries made commitments in telecom, although only 49 of these indicated that services could be supplied by at least two suppliers. Of these, 35 offered some form of voice telephony.

2.2. Central and East European Countries[4]

Nine of the Central and East European Countries (CEECs) (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Poland and Romania, Slovakia and Slovenia) made commitments on telecom, although that of Slovenia does not allow for access by more than two suppliers. Lithuania is in the process of accession. Implementation by some the countries which did make commitments is currently regarded by industry as not yet meeting the requirements of the Reference Paper.

Nevertheless, all the CEECs have embraced a programme of institutional reform as well as infrastructure modernisation as part of their efforts to become an integrated part of Europe and its institutions and progress made thus far has been considerable. The establishment of regulatory policy in the CEECs is

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2 This section looks at a limited group of countries - Latin America, Central and East European countries, Asia and ACP countries - although there is obviously some overlap between the groups, as well as with the OECD.

3 Telegeography, 1999, p11.

4 Defined, for the purposes of this paper as Estonia, Latvia, Lithuania, Slovenia, Slovakia, Romania, Bulgaria, Czech Republic, Poland, Hungary.

guided by the GATS framework as well as by the EU telecommunications acquis. Although commitments will be phased-in over a one- to four-year period, Latvia, Slovakia, Romania, Poland, Hungary, Czech Republic and Bulgaria commit to liberalisation in local, long distance and international services for public and non-public uses on a facilities- and resale-basis. Latvia, Bulgaria, Czech Republic, Romania and Slovakia place no limitations on foreign ownership in their commitments and Hungary and Poland set a 49% threshold. These countries further commit to the Reference Paper on regulatory principles.

Infrastructure investments are already strongly apparent the Central and East European Countries. Teledensity[5] tends to be above that of most developing countries averaging 30.5, a low of 17.4 in Romania and a high of 38.1 in Slovenia. Increases in the number of main lines since 1993 range from 4.0 percent in Latvia to 17.4 percent in the Czech Republic, with digitalisation at 62.2% in Poland, 83% in Slovenia and 38.3% in Latvia. Ministries estimate an average of 6.4 years to reach teledensity of 50, but again present achievement and growth rates vary widely between the CEECs. The number of mobile telephones is also increasing, standing at an average of 9.16 per one hundred, and accounting for 18 percent of lines.[6]

In addition to their WTO commitments, ten CEECs have ratified an Association Agreement with the European Union and the agreements of Latvia and Estonia are accompanied by a joint declaration on telecommunications. While these agreements are in various stages of implementation and new telecommunications laws are pending, doubts remain as to whether all associated countries comply with their commitments to uphold the principles of Article 90 of the EC Treaty by a specific date.[7]

Most problems relate to the extension or scope of the extension of monopoly rights, the lack of or questionable status of the independent regulator, the transparency of licensing mechanisms, the prevention of anti-competitive pricing policies and the existence of effective enforcement of competition decisions.

The telecommunications market itself tends to be dominated by an incumbent, partly state-owned provider. As mentioned above, these providers have been granted monopoly rights in some sectors or sub-sectors for a given period of time. In most cases CEECs see these monopoly rights as necessary to ease the move to a full market economy and the need for investment in unprofitable areas. Investment and growth in telecommunications have indeed been significant, yet are often contingent on economic growth and investment climate and therefore lack consistency. Mobile markets are more fully liberalised than fixed-line markets, with at least two and in most cases three services providers in each country.

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5 Defined, for the purposes of this paper as mainlines per 100

6 All figures based on data collected by the European Commission from public sources.

7 Although the joint declarations exempt Estonia and Latvia from the Article 90 commitments, the prerequisites for this exemptions are perhaps not being met.

In many areas of infrastructure modernisation and regulation the Central and East European Countries have made impressive progress. Of the many GATS telecom commitments, those of the CEECs stand out as ambitious and consistent. Nevertheless, the true test of any such commitments will be in their implementation. Further, although infrastructure improvements are a positive development, many of the less developed CEECs will require considerable investment to approach the level of development in EU member states.

2.3. Mediterranean, Middle Eastern countries

Of the Mediterranean and Middle Eastern countries (a number of which, it should be borne in mind, are not WTO Members – Oman, Jordan, Saudi Arabia and Algeria are engaged in the process of accession) only four made telecom commitments (Cyprus, Israel, Morocco and Tunisia).

Cyprus only committed to review its regulatory framework in view of prospective liberalisation in the future. Morocco made very limited commitments, including its own version of regulatory principles, and reserved its monopoly for fixed services until 2002, mentioning that new legislation would be enacted in the meantime. Tunisia committed to open its mobile market in 2000 and its fixed local market in 2003.

Israel made commitments to open its international market to two additional operators in 1998 and to open its local market in 2001. The mobile market in Israel has been gradually opened for competition since 1998 with four competing operators since 1999. Additional liberalisation is not foreseen until 2002, although recent information indicates that the Government of Israel is considering to grant further licenses in the communications sector.

2.4. Former USSR republics and Mongolia

Of the former republics of the Soviet union and the former Eastern bloc countries, only one, the Kyrgys Republic, has made a commitment on telecom involving supply by two or more suppliers. More than ten of these countries are in the process of acceding to the WTO. When acceding, Mongolia included a reference to telecom in its schedule.

2.5. ACP countries and Sub-Saharan Africa (see also Annex III)

Of the 71 ACP countries 17 have made commitments on telecom involving the participation of at least two suppliers, while a further eight included telecom in their schedules in some other way. Of the 17 countries where a real commitment can be said to have been made, 11 have included some form of provision of voice telephony, although usually on a phased basis. This group of countries also included some of the longer term phase-ins.

Thirteen African countries have made a commitment of some kind in telecom, and all but two of these have incorporated the Reference Paper on regulatory principles with few, if any, modifications.

Development of regulatory policies and regimes are at various stages. In southern Africa, only three out of fourteen African countries have not separated

posts from telecommunications, and regulatory policies are in various stages of review. South Africa, for example, has made a phased commitment for a number of telecom services, including all forms of voice telephony. The regulator, SATRA, was established in 1996. Its objectives include the establishment of universal access, followed by universal service, overcoming the imbalance of service provision between different sections of society, providing a wide range of services, and effective use of telecom for social and economic development. At the same time that the regulatory authority was set up, the exclusive rights of the monopoly operator, Telkom, were extended for five years, and it was given a mandate to achieve the goals set. In this context concern has been expressed about the independence of the regulator from both government and the monopoly operator.

The level of development of the African telecommunications infrastructure is the lowest of all developing countries if taken as a whole. Teledensity in Africa has reached an average of a mere 1.85, with .5 in east Africa, 2 in central and west Africa, but as high as 16.21 in Mauritius and 11 in South Africa.[8] $2.8 million were invested in 1996 in telecommunications and the number of mainlines increased by 9.6 percent. Cellular mobile growth was 54.2 percent in the same period with .1 per one hundred inhabitants, concentrated in urban areas. The ITU predicts that tele-density will increase to 2.19 by 2000.[9]

The telecommunications markets themselves are dominated by incumbent, state-owned carriers. Eleven carriers in mostly smaller African countries of Madagascar, Central African Republic, Cape Verde, Ghana, Guinea, Guinea-Bissau, Sao Tome and Principe, Senegal and South Africa have been partially privatised, with the private partner holding between 30 and 60 percent of the shares. Fourteen countries have announced their intentions to privatise, and Ghana, Uganda and Seychelles have issued second licenses. Fifty-five mobile operators offer services in Africa, of which 25 are private and 11 partially private.[10] At present, few African telecommunications carriers, private or public, have the resources to expand or modernise existing networks.

2.6. Pacific Islands

Of the Pacific island countries, only Papua New Guinea has made a commitment to WTO Basic Telecommunications. The commitment made by Papua New Guinea is fairly weak, including the Reference Paper on regulatory principles but committing to merely review policies in all relevant sectors by 2000. The regulatory authority in the Pacific island countries tends to be the Ministry for Communications or a unit thereof, although Papua New Guinea has established an independent authority.[11]

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8 Marcelino, Tayob. Presentation "Regional Perspectives Telecommunications Workshop" Botswana, May 3, 1999. http://www.itu.int/treg/Events/Seminars/1999/Botswana/Docs22-50.asp

9 International Telecommunications Union *World Telecommunications Development Report 1998: Universal Access* Geneva, 1998.

10 Edwards, W. Kent. Presentation "Competition & Interconnection" Botswana, May 4, 1999. http://www.itu.int/treg/Events/Seminars/1999/Botswana/Docs22-50.asp

11 ITU Country Profiles http://www7.itu.int/bdt_cds/IDC/Countries.idc

The level of telecommunications infrastructure development in the Pacific countries lies between that of the African and Caribbean countries, and one does not see such great disparities in development as in the other two regions. Teledensity in the eight Pacific island countries is on average 3.21, with a high of 9.19 in Fiji and a low of 1.06 in the Solomon Islands. The overall growth rate between 1996 and 1997 reached 8 percent. Only Fiji and Papua New Guinea are served by submarine cables and cellular services are provided in Fiji, Papua New Guinea, Solomon Islands and Tonga, where penetration is on average .2 per 100. [12][13]

Like the Caribbean countries, Pacific telecommunications markets tend to be dominated by a single service provider, although in a few cases international or cellular services are provided by a second or third operator.[14] Similarly, Cable and Wireless has retained interests in several international carriers in the Pacific including Fiji, Tonga, the Solomon Islands and Vanuatu, and Vodaphone provides cellular services in Fiji

2.7. South and Southeast Asia

Most ASEAN[15] countries plus India, Pakistan and Sri Lanka made GATS telecom commitments. All of these countries typically maintain an exclusive public operator or a duopoly for international services, whereas full competition for local and mobile services has been introduced. Most Asian countries maintain foreign ownership restrictions, typically allowing less than 30 to 40% foreign ownership of local telecommunications operators.

State ownership of the main operator also remains a typical situation of the region, although full privatisation and liberalisation of all services have taken place in the Philippines and the state only maintains a minority share of the main operator in Malaysia. Indonesia only made very limited commitments and maintains exclusivity for international services until 2005, although it commits fully to the Reference Paper. Sri Lanka maintains restrictions regarding mobile services (number of licenses), but starts to open up its international fixed services market in 2000. It made full commitment to the Reference Paper. Pakistan only offered to open its market for local, domestic and international services in 2004. Like India it committed to its own version of the Reference Paper. India has liberalised the local and long-distance telephony. In 17 of its 19 circles telephony is offered in a duopoly. The Telecom Regulatory Authority of India and the Department of Telecommunications had their disparities in the past. The new telecommunication law of 1999 foresees in the creation of a third body that should act as a court to settle problems between the TRAI and the DoT.

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12 Ibid.

13 Data for Tuvala not available.

14 Ibid.

15 The Association of Southeast Asian Nations or ASEAN consists of the following Member Countries: Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei Darussalam, Vietnam, Laos, Myanmar and Cambodia.

In accordance with its GATS commitments, Singapore recently moved the date for full liberalisation forward by two years to 1 April 2000 and also eased its foreign ownership restriction to 49% at that occasion. Singapore is also committed to the regulatory principles of the full Reference Paper.

2.8. Latin America and Caribbean

Most Latin American countries, with a few exceptions like Uruguay (this country maintains its monopoly for telecommunications services), made GATS commitments in telecommunications services. Some countries like Argentina and Bolivia made phased commitments for market access which become effective in 2000 and 2001, respectively. Brazil maintained important restrictions on public telecommunications services, allowing only full market access for services to closed user groups. In practise Brazil has adopted a duopoly market approach for all telecommunications services.

Overall market access and national treatment remains restricted in various ways in most countries, with a few exceptions like Chile and Colombia. Independent regulators and regulatory regimes are developing, but only a few countries have fully adopted the GATS regulatory principles. However, it is worth noting that efforts to promote liberalisation are also progressing within regional co-operation organisations such as Mercosur, the Andes Pact, the Central-American Common Market and the Caribbean countries. Such co-operation also includes the implementation of the regulatory principles of the GATS Reference Paper.

Of the 15 Caribbean countries, all but Haiti, St. Lucia, and St. Vincent and the Grenadines, and Barbados made GATS telecom commitments for basic telecom of some kind. Most of the committed countries maintain an exclusive public operator or duopoly, committing to open their market after a given phase-in period. All of these commitments include the Reference Paper on regulatory principles with few, if any modifications.

The telecommunications market in the Caribbean tends to be dominated by Cable & Wireless, where it provides national and international communications largely through controlled local operating companies. Since then, pressure from some governments and potential competitors seeking to enter the market has increased.

Annex 5

List of operators, associations, organisations involved in information-gathering for the sixth report

List of operators, associations, organisations involved in information-gathering for the sixth report

BELGIUM	**Belgacom**		
	Platform Telecom Operators & Service Providers: A.S.T.R.I.D Axxon Telecom B-Telecom BT Brutele Cable & Wireless Belgium Codenet Colt Telecom	Debitel Belgium Dolphin Telecom Belgium GTS Belgium Global One Communications Interoute KPN Orange Belgium KPN Belgium Level 3 Communications Mobistar	Ram Mobile Data Belgium RSL COM Belgium Telenet Operaties UPC Belgium Versatel Telecom Belgium Viatel Worldcom Worldxchange Communications
DENMARK	**Danish Telecommunication Industries Association** **Mobilix** **Sonofon** **Telia DK** **Tele Danmark** **Tele2**		
GERMANY	**VATM (Verband der Anbieter von Telekommunikations- und Mehrwertdiensten)** **Brekoverband** **Deutsche Telekom AG**		
GREECE	**FORMUS Communications** **Forthnet** **Med. Telecom.** **NetMed** **OTE** **Panafon** **STET Hellas**		
SPAIN	**ANIEL (Asociación Nacional Industrias Electrónicas y de Telecomunicaciones):** Abrared, s.a. Airtel Movil s.a. Cable & Wireless, sa Menta. Cable i Televisio de Catalunya, s.a.	Centre de Telecomunicacions de la Generalitat de Catalunya Correos Telecom, s.a. Madritel Euskaltel, s.a. Global Crossing (gc pan european crossing españa, s.l.r.	Cable y Telecomunicaciones Galicia, GTS Carrier Services Hispasat Infoglobal s.a. KPNqwest España, s.a.u.
	ASTEL (Asociación de Empresas Operadoras y de Servicios de Telecomunicaciones): Airtel Móvil, S.A. Amena- Retevisión Móvil, S.A. ALO Comunicaciones Al-pi (Catalana de Comunicaciones) ATT Global Network Services AVIRON Router AXS Telecom España, S.A. BT Telecomunicaciones, S.A. Cableuropa, S.A. –ONO Cable & Wireless	Capcom International, S.L. Colt Telecom España. S.A. Comunitel Global ,S.A Grupo Comytel (Imadile, S.L.) Euskaltel, S.A. FaciliCom International,S.L. FirstMark Global-One, S.A GTS Interoute Telecomunicaciones, S.A Jazztel, S.A.	LCR Telecom (Grupo Primus) Lince Comunicaciones, S.A.- UNI2 Madritel Comunicaciones, S.A. Priority Telecom, S.L. Retevisión, S.A SITA-EQUANT TeleChoice España, S.A. Viatel Global Communications, S.A.
	Telefónica		

FRANCE	**AFOPT (Assoc. Française des Opérateurs Privés en Télécommunications):** 9 Telecom Bouygues Telecom, Le groupe Cegetel (Cegetel Entreprise, SFR, SRR),	GTS Omnicom, COLT Télécommunications France,	Completel, UPC France, LD COM.
	AOST (Assoc. des Opérateurs de Services de Télécommunications): Atlantic AT&T BT Cable & Wireless CEGETEL Entreprises Completel	Facilicom International GTS – Omnicom Liberty Surf Telecom Linx Telecom KPNQWest NC Numericable	NOOS RSLCOM SIRIS Telecom Developpement Viatel MCIWorldcom 9 Telecom Reseau
	France Telecom		
	TENOR (Organisation Professionnelle de Télécommunications):	70 members in the field of telecommunication servies.	
IRELAND	**ALTO (Assoc. of Licensed Telecommunications Operators):** Cable & Wireless Chorus (formerly Irish Multichannel) COLT Conduit	Esat Digifone Esat Telecom Fusion (formerly OCEAN) GTS Interoute	Meteor Nevada (formerly Stentor) NTL Swiftcall Worldcom
	Eircom		
ITALY	**ANUIT (Associazione Nazionale Utenti Italiani di Telecomunicazioni)** **Telecom Italia - TIM** **Albacom** **Blixer** **Colt Telecom** **Convergence Group** **E-planet** **Fastweb/Metroweb** **Formus** **Global One** **Grapes RSL COM** **Infostrada** **MCI WorldCom** **Tiscali/Andala** **Viatel** **Wind**		
LUXEMBOURG	**Cegecom** **CLT-UFA** **Codenet** **Coditel** **First mark** **Global one Com** **GTs** **EPT Lux** **Tele2** **WorldCom**		

THE NETHERLANDS	**BEN** **Debitel** **Dutchtone** **Energis** **Formus** **GTS** **KPN** **Libertel** **NLIP** **Telfort** **Vecai** **Versatel** **Talkline** **XOIP**		
AUSTRIA	**Arbeiterkammer**		
	VAT (Verband Alternativer Telekomnetzbetreiber): Callino GmbH Colt Telecom Austria GmbH Connect Austria Gesellschaft für Telekommunikation GmbH CyberTron Telekom AG CyberTron mit 1066 Telekom GmbH EconoPhone GmbH European Telecom International AG	FaciliCom International GmbH Global One Telekommunikationsdienste GmbH Kabelsignal Rundfunk-Vermittlungsanlagen AG LIWEST Kabelmedien GmbH max.mobil. Telekommunikation Service GmbH MCI WorldCom Austria GmbH NETnet Telekommunikation GmbH RSL COM Austria AG	Storm Telecommunications Ltd Tele2 Telecommunication Services GmbH Telekabel Wien GmbH TelePassport Telekommunikationsdienst-leistungen GmbH tele.ring Telekom Service GmbH TetraCall Bündelfunk Errichtungs- und Betriebs-GmbH UTA Telekom AG
	Telecom Austria		
PORTUGAL	**APRITEL (Assoc. dos Operadores Privados de Telecomunicações):** Cabovisão, Televisão por Cabo, S.A. CATVP - TV Cabo Portugal, S.A. Eastécnica- Electrónica e Técnica, Lda. HLC, Telecomunicações e Multimédia, S.A. Interoute, Comunicações Digitais, S.A. JazzTel Portugal, Serviços de Telecomunicações, S.A	Maxitel, Serviços de Gestão de Telecomunicações, S.A. Onitelecom- Infocomunicações, S.A. Optimus Telecomunicações, S.A. PT-Prime, Soluções Empresariais de Telecomunicações e Sistemas, S.A. Repart- Sistemas de Comunicações de Recursos Partilhados, S.A SITA- Société Internationale de Telecomunications Aeronautiques	Sonae, Rede de Dados, S.A. Telecel, Comunicações Pessoais, S.A. Telepac, Comunicações Interactivas, S.A. Televoz, Consultadoria em Difusão, S.A. Teleweb, Comunicações Interactivas, S.A. TMN, Telecomunicações Móveis Nacionais, S.A
	Portugal Telecom		
FINLAND	**FiCom (The Finnish Federation for Communications and Teleinformatics)** **Sonera** **Telia Finland** **TheFinnet Group** **Saunalahti**		
SWEDEN	**Bredbandsbolaget AB** **Svenska IT-företagens Organisation, SITO** **Telia AB** **Tele1** **Telenordia AB**		

UK	**BT**		
	OAG (Open Access Group)		
	OLO (Other Licensed Operators) Atlantic Telecom; COLT; Cable and Wireless; Dolphin; Energis Eurobell; GTS; Global Crossing; Global One;	Hermes; Kingston Group; MCI/Worldcom; Norweb Telecom; ntl; One2One; Orange; Redstone Thus;	Teleglobe; Telewest; Telia; Telinco; Telstra; Viatel; and Vodafone
	SPIG (Service Providers Interest Group): Advanced Mobile Communications Cellcom Ltd CKX Telecom Ltd Counsellors in Public Policy DIALnet Plc INMS ISPA	NETnet Nextcall Telecom Plc Project Telecommunications Ltd Radio Sales & Maintenance Reuters Ltd RSL COM SpeechNet	Spitfire Technology Group The London Internet Exchange Vanco Video Networks Ltd Wavetech Ltd World Online The Direct Marketing Association (UK) Ltd
PAN EUROPEAN	**BEUC (Bureau Européen des Unions de Consommateurs):** VKI - Verein für Konsumenteninformation TA - Test-Achats FR - Forbrugerrådet KK - Kuluttajat-Konsumenterna ry SK - Suomen Kuluttajaliitto Kuluttajavirasto UFC - Que Choisir CLCV - Confédération de la Consommation, du Logement et du Cadre de Vie OR.GE.CO - Organisation Générale des Consommateurs AgV - Arbeitsgemeinschaft der Verbraucherverbände	Stiftung Warentest E.K.PI.ZO - Association for the Quality of Life Kepka National Association for Consumer Protection in Hungary NS - Neytendasamtökin CAI - Consumers' Association of Ireland CCA - Comitato Consumatori Altroconsumo ULC - Union Luxembourgeoise des Consommateurs CB - Consumentenbond FR - Forbrukerrådet	DECO - Associação Portuguesa para a Defesa do Consumidor Polish Consumer Federation National Council ZPS - Zveza Potrošnikov Slovenije CECU - Confederación Estatal de Consumidores y Usuarios OCU - Organización de Consumidores y Usuarios SK - Sveriges Konsumentråd FRC - Fédération Romande des Consommateurs CA - Consumers' Association NCC - National Consumer Council CEg - Consumers in Europe Group
	ECCA (European Cable Communications Association)		
	ECCO (European Competitive Carriers' Organisation)		
	ECTA (European Competitive Telecommunications Assoc.): 360networks inc. Arnold & Porter Arthur Andersen BT Wholesale Services & Solutions Cable & Wireless ECtel Ltd. Equador	First Telecom/Atlantic FirstMark Communications Global Crossing Europe GTS Wholesale Services Immix Telecom Europe, BV Level 3 Lovells Lucent Technologies	Norman Broadbent Global Technology Practice Nortel Networks+A147 Stonehenge Telecom EMEA B.V. Swisscom AG, Bern WorldCom International Wholesale

EICTA (European Information Communication Technology Association)		
ETNO (European Public Telecommunications Network Operators' Association): Belgacom BT Bulgarian Telecommunications Company Cesky Telekom Community of Yugoslav PTT Croatian Telecom Cyprus Telecommunications Authority Deutsche Telekom Eircom Energis Communications EPT Luxembourg Estonian Telephone Co. Facilicom International Sweden Finnet Group France Telecom	Iceland Telecom Infostrada KPN Lattelekom Lietuvos Telekomas Makedonski telekomunikacii AD Maltacom MATÁV Hungarian Telecommunications Company Netia Holdings O.T.E. Polish Telecom Portugal Telecom PTT Bosnia and Herzegovina Retevision Rom Telecom Slovak Telecom	Sonera Swisscom Tele 2Telecom Italia TeleDanmark Telefonica Telekom Austria Telekom Slovenije Telenor Telenordia Telia Türk Telekom Viatel Westel 900 GSM
EuroIspa: ISPA Ireland ISPA UK AFA France	ECO Germany ISPA Belgium NLIP Netherlands AIIP Italy	ISPA Finland FIL Denmark ISPA Austria
INTUG (International Telecommunications Users Group): Arbeitsgemeinschaft für Datenverarbeitung (ADV) Vereinigung von TK-netzbetreibern des Finanzsektors (VTF) Belgian Telecommunications Users Group (BELTUG) Dansk Dataforening (DDF) Association of Telecommunication Users (AUTEL)	Association Française des Utilisateurs du Téléphone et des Télécommunications (AFUTT) International Communication User Group (ICG) Telecommunications Users Group (TUG) Associazione Nazionale Utenti Italiani di Telecomunicazioni (ANUIT)	Nederlandse vereniging van bedrijfs telecommunicatie grootgebruikers (BTG) Näringslivets Telekommitté (NTK) Communications Management Association Telecommunications Users Association (TUA) International Press Telecommunications Council (IPTC) Telecom eV

Annex 6

Glossary of terms and acronyms

Glossary of terms and acronyms

2G	second-generation mobile telephony (digital cellular voice telephony)
3G	third-generation mobile telephony (a generic term covering a range of future wireless network technologies, including UMTS)
ACR	anonymous call rejection: a service which automatically rejects any incoming calls where the presentation of the calling line identification has been eliminated by the calling user
administrative fees	fees set at a level calculated to recover the costs of the administrative procedures concerned
ADSL	asymmetric digital subscriber line
advice of charge	a service informing the caller of the charge payable at the end of his call
AGCOM	Autorità per le Garanzie nelle Comunicazioni, the Italian national regulatory authority (together with the Ministry of Communications)
AIC	average incremental costs
ART	Autorité de Régulation des Télécommunications, the French national regulatory authority (together with the Ministry of Economic Affairs, Finance and Industry)
backhaul	the link from the cablehead to the international switching centre
beauty contest	the award of scarce resources, such as the right to use radio spectrum, according to technical criteria, such as the applicant's ability and commitment to provide the designated service, rather than financial criteria
Belgacom	the Belgian incumbent
BIPT	Belgisch Instituut voor postdiensten en telecommunicatie, the Belgian national regulatory authority (together with the Minister for Telecommunications and Public Undertakings)
BT	British Telecom, the UK incumbent
carrier pre-selection	a service enabling a telephone subscriber to select a carrier for all calls or for certain categories of calls (e.g. international and/or long-distance), irrespective of whether that carrier is the provider of the local loop

carrier selection	a service enabling a telephone subscriber to select a carrier for individual calls, irrespective of whether that carrier is the provider of the local loop
CATV	cable television
CCITT	International Telegraph and Telephone Consultative Committee
CLI	calling line identification
CMT	Comisión del Mercado de las Telecomunicaciones, the Spanish national regulatory authority (together with the State Secretary for Telecommunications and the Information Society)
CPI	consumer price index
CPS	carrier pre-selection (a service enabling a telephone subscriber to select a carrier for all calls or for certain categories of calls (e.g. international and/or long-distance), irrespective of whether that carrier is the provider of the local loop)
CS	carrier selection (a service enabling a telephone subscriber to select a carrier for individual calls, irrespective of whether that carrier is the provider of the local loop)
DCS 1800	Digital Cellular Standard for the 1 800 MHz band
DECT	Digital European Cordless Telecommunications
DLE	digital local exchange
DMSU	digital main switching unit
donor operator or service provider	operator or service provider ceding a number to another operator or service provider (the recipient operator or service provider)
double tandem conveyance	a service provided by a network operator to interconnected network operators whereby a call passed on to the operator's network at a tandem exchange (i.e. one that routes calls between exchanges but not having direct connections to end users) is passed to another tandem exchange and then on to a local exchange (i.e. one that does have direct connections to end users) and finally on to the end user.
DSL	digital subscriber line
DT	Deutsche Telekom, the German incumbent

DTT	digital terrestrial television
EBC	element-based charging (e.g. for interconnection)
EDC	embedded direct costs
EETT	? ????? ? p?t??p? ? ??ep?????? ?? ? ?a?? a??d??µe?? ?, the Greek national regulatory authority (together with the Ministry of Transport and Communications)
Eircom	the Irish incumbent
EPT	Entreprise des Postes et Télécommunications, the Luxembourg incumbent
ERC	European Radiocommunications Committee
Erlang	a measure of telecommunications traffic: 1 Erlang corresponds to a circuit carrying one call for one hour
ETNO	European Public Telecommunications Network Operators' Association
Fifth Report	Fifth Report on the Implementation of the Telecommunications Regulatory Package (COM(1999) 537 final)
Finnet Group	The Finnish incumbent grouping of local network operators
fixed wireless access	another term for wireless local loop (a wireless connection between a telephone exchange and the subscriber's telephone)
FRIACO	flat-rate Internet access call origination
FT	France Télécom, the French incumbent
FWA	fixed wireless access, another term for wireless local loop (a wireless connection between a telephone exchange and the subscriber's telephone)
General Data Protection Directive	Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data (OJ L 281, 23.11.1995, p. 31)
geographic number	a number from the national numbering plan where part of its digit structure contains geographic significance used for routing calls to the physical location of the network termination point of the subscriber to whom the number has been assigned (Article 2(1)(i) of the Interconnection Directive, as amended by the Numbering Directive)

GSM	Global System for Mobile Communications, the standard used for second-generation mobile telephony in Europe
GSM Directive	Council Directive 87/372/EEC of 25 June 1987 on the frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community (OJ L 196, 17.7.1987, p. 85)
IBPT	Institut belge des services postaux et de télécommunications, the Belgian national regulatory authority (together with the Minister for Telecommunications and Public Undertakings)
ICP	Instituto das Comunicações de Portugal, the Portuguese national regulatory authority
ICPS	interim carrier pre-selection
IEC	interconnection extension circuit
ILT	Institut Luxembourgeois des Télécommunications, the Luxembourg national regulatory authority
IMT-2000	International Mobile Telecommunications-2000, a standard for third-generation mobile telecommunications based on ITU Recommendation M.687
incumbent operators (incumbents)	telecommunications organisations granted special and exclusive rights by Member States or public operator(s) which enjoyed a de facto monopoly before liberalisation
indirect access	another term for carrier selection or carrier pre-selection
interconnection	the physical and logical linking of telecommunications networks used by the same or a different organisation in order to allow the users of one organisation to communicate with users of the same or another organisation, or to access services provided by another organisation; services may be provided by the parties involved or other parties who have access to the network (Article 2(1)(a) of the Interconnection Directive)
Interconnection Directive	Directive 97/33/EC of the European Parliament and of the Council of 30 June 1997 on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP) (OJ L 199, 26.7.1997, p. 32)
ISDN	Integrated Services Digital Network
ISP	Internet service provider

ISVR	international simple voice resale
KPN	the Netherlands incumbent
Leased Lines Directive	Council Directive 92/44/EEC of 5 June 1992 on the application of open network provision to leased lines (OJ L 165, 19.6.1992, p. 27)
Licensing Directive	Directive 97/13/EC of the European Parliament and of the Council of 10 April 1997 on a common framework for general authorisations and individual licences in the field of telecommunications services (OJ L 117, 7.5.1997, p. 15)
LLU	local loop unbundling (a service whereby a telecommunications organisation provides unbundled access to its local loop to another telecommunications organisation)
local loop	the connection between a telephone exchange and the subscriber's telephone
local loop unbundling	a service whereby a telecommunications organisation provides unbundled access to its local loop to another telecommunications organisation
LRAIC	long-run average incremental costs
LRIC	long-run incremental costs
MDF	main distribution frame
MMDS	microwave multipoint distribution systems
MNP	mobile number portability
MVNO	mobile virtual network operator
network operators	operators that install, manage and operate their own (wire or wireless) telecommunications transmission network to provide public telephony services or public network services
network services	the conveyance of calls, messages and signals over a telecommunications network, including any necessary switching; network services may be network interconnection services, which are provided to other network operators to enable calls and associated functions to be passed through interconnected networks, or basic retail network services which are provided to other customers such as end users or service providers

New Leased Lines Directive	Directive 97/51/EC of the European Parliament and of the Council of 6 October 1997 amending Council Directives 90/387/EEC and 92/44/EEC for the purpose of adaptation to a competitive environment in telecommunications (OJ L 295, 29.10.1997, p. 23.)
New Voice Telephony Directive	Directive 98/10/EC of the European Parliament and of the Council of 26 February 1998 on the application of open network provision (ONP) to voice telephony and on universal service for telecommunications in a competitive environment (OJ L 101, 1.4.1998, p. 24)
NP	number portability
non-conformant numbers	numbers not conforming to the current national numbering plan
NRA	national regulatory authority
NTA	National Telecom Agency (Telestyrelsen), the Danish national regulatory authority
NTCs	number translation codes
Numbering Directive	Directive 98/61/EC of the European Parliament and of the Council of 24 September 1998 amending Directive 97/33/EC with regard to operator number portability and carrier pre-selection (OJ L 268, 3.10.1998, p. 37)
ODTR	Office of the Director of Telecommunications Regulation, the Irish national regulatory authority
OFTEL	Office of Telecommunications, the UK national regulatory authority (together with the Department of Trade and Industry)
OLOs	other licensed operators, i.e. licensed operators other than the incumbent
ONP	open network provision
ONP Committee	the committee set up by Article 9 of the ONP Framework Directive
ONP Framework Directive	Council Directive 90/387/EEC of 28 June 1990 on the establishment of the internal market for telecommunications services through the implementation of open network provision (OJ L192, 24.7.1990, p. 1.)
OPTA	Onafhankelijke Post en Telecommunicatie Autoriteit, the Netherlands national regulatory authority

OTE	? ??a??s µ?? ? ??ep?????? ?? ? ? ???d??, the Greek incumbent
PCPS	permanent carrier pre-selection
physical collocation	a service offered by a network operator to interconnected network operators whereby the latter may place, install and maintain equipment, software, and databases on its premises in order to interconnect with its network
POI	point of interconnection
PSTN	public switched telephone network
PT	Portugal Telecom, the Portuguese incumbent
PTO	public telecommunications operator
PTS	Post- och Telestyrelsen, the Swedish national regulatory authority
public fixed network services	the conveyance of calls, messages and signals over a telecommunications network, including any necessary switching; they may be network interconnection services, which are provided to other network operators to enable calls and associated functions to be passed through interconnected networks, or basic retail network services, which are provided to other customers such as end users or service providers
public fixed voice telephony	a service available to the public for the direct transport on a commercial basis of real-time speech via the public switched network, such that any user can use equipment connected to a network termination point at a fixed location to communicate with another user of equipment connected to another termination point
public mobile telephony network	a public telephone network where the network termination points are not at fixed locations
public mobile telephone service	a telephony service whose provision consists, wholly or partly, in the establishment of radiocommunications to one mobile user, and makes use wholly or partly of a public mobile telephone network
public telecommunications network	a telecommunications network used, in whole or in part, for the provision of publicly available telecommunications services
recipient operator or service provider	operator or service provider receiving a number from another operator or service provider (the donor operator or service provider)

Recommendation on Accounting Separation and Cost Accounting	Commission Recommendation 98/322/EC of 8 April 1998 on interconnection in a liberalised telecommunications market (Part 2 - Accounting separation and cost accounting) (OJ L 141, 13.5.1998, p. 6)
Recommendation on Interconnection Pricing	Commission Recommendation 98/195/EC of 8 January 1998 on interconnection in a liberalised telecommunications market (Part 1 - Interconnection pricing) (OJ L 73, 12.3.1998, p. 42)
Recommendation on Local Loop Unbundling	Commission Recommendation 2000/417/EC of 25 May 2000 on unbundled access to the local loop: enabling the competitive provision of a full range of electronic communications services including broadband multimedia and high-speed Internet (OJ L 156, 29.6.2000, p. 44.)
re-farming	the re-allocation of radio spectrum (in particular the re-allocation of radio spectrum currently licensed for use with equipment complying with GSM or DCS 1800 standards to allow the use of equipment complying with a third-generation standard)
reference interconnection offer	an offer made by the incumbent which includes a description of the interconnection offerings broken down into components according to market needs, and the associated terms and conditions, including tariffs (Article7(3) of the Interconnection Directive)
Reg TP	Regulierungsbehörde für Telekommunikation und Post, the German national regulatory authority
RIO	reference interconnection offer
RUO	reference unbundling offer
SDSL	symmetric digital subscriber line
second-generation mobile telephony	digital cellular voice telephony
service providers	operators that offer public telecommunications services using mainly third-party (wire or wireless) networks, excluding fixed voice telephony service providers who do not provide voice telephony within the meaning of Community law, such as simple resellers, calling card service providers and call back operators; they may also manage, operate and control leased lines
single tandem conveyance	a service provided by a network operator to interconnected network operators whereby a call passed on to the operator’s network at a tandem exchange (i.e. one that routes calls between exchanges but not having direct connections to end users) is passed on to a local exchange

	(i.e. one that does have direct connections to end users) and then on to the end user
SLA	service level agreement
SMP	significant market power
SMS	GSM short message service
SNG	Satellite News Gathering (ITU-R SNG Series Recommendations)
Sonera	The Finnish incumbent long-distance operator
S-PCS	Satellite Personal Communications Services
special network access	access to the fixed public telephone network at network termination points other than the commonly provided network termination points referred to in Part 1 of Annex II to the New Voice Telephony Directive
subscriber	any natural or legal person who or which is party to a contract with the provider of publicly available telecommunications services for the supply of such services (Article 2(1)(h) of the Interconnection Directive, as amended by the Numbering Directive).
TA	Telekom Austria AG, the Austrian incumbent
TAC	The Telecommunications Administration Centre (*Telehallintokeskus-Teleförvaltningscentralen*), the Finnish national regulatory authority
target delivery period	a proposed or advertised delivery period for types of leased line which have been introduced recently or for which the statistical base is too small to calculate a statistically valid typical delivery period
target repair time	a proposed or advertised repair time for types of leased line which have been introduced recently or for which the statistical base is too small to calculate a statistically valid typical repair time
tariff rebalancing	the progressive adjustment of tariffs towards cost orientation
Telecommunications Data Protection Directive	Directive 97/66/EC of the European Parliament and of the Council of 15 December 1997 concerning the processing of personal data and the protection of privacy in the telecommunications sector (OJ L 24, 30.1.1998, p. 24)
Tele Danmark	the Danish incumbent
Telefónica	the Spanish incumbent

Telia	the Swedish incumbent
telecommunications network	transmission systems and, where applicable, switching equipment and other resources which permit the conveyance of signals between defined termination points by wire, by radio, by optical or by other electromagnetic means (Article 2(1)(c) of the Interconnection Directive)
terminating segment	line linking a customer's premises to an operators' trunk network
third-generation mobile telephony	a generic term covering a range of future wireless network technologies, including UMTS
TI	Telecom Italia, the Italian incumbent
TKC	Telekom-Control GmbH, body of the Austrian national regulatory authority
TKK	Telekom-Control Kommission, body of the Austrian national regulatory authority
tromboning	sending traffic which comes from a fixed and is destined for a mobile network in the same country via a second country to take advantage of beneficial accounting rates for termination of international traffic on mobile networks.
typical delivery period	the period (in days), counted from the date when the user has made a firm request for a leased line, in which 95% of all leased lines of the same type applied for during the monitoring period have been put through to the customers, as referred to in Article 4 of Directive 92/44/EEC
typical repair time	the period (in hours), counted from the time when a failure message has been given to the responsible unit within the organisation providing the leased line up to the moment in which 80% of all leased lines of the same type have been re-established and in appropriate cases notified back in operation to the users, as referred to in Article 4 of Directive 92/44/EEC
UMTS	Universal Mobile Telecommunications System: a third-generation mobile and wireless communications system capable of supporting in particular innovative multimedia services, beyond the capability of second-generation systems such as GSM, and capable of combining the use of terrestrial and satellite components (Article 2 of the UMTS Decision)
UMTS Decision	Decision No 128/1999/EC of the European Parliament and of the Council of 14 December 1998 on the coordinated introduction of a third-generation mobile and wireless communications system (UMTS) in the Community

	(OJ L 17, 22.1.1999, p. 1)
universal service	a defined minimum set of services of specified quality which is available to all users independent of their geographical location and, in the light of specific national conditions, at an affordable price (Article 2(1)(g) of the Interconnection Directive)
universal service contributions	a mechanism for sharing the net cost of universal service obligations, referred to in Article 5 of the Interconnection Directive
users	individuals, including consumers or organisations, using or requesting publicly available telecommunications services (Article 2(1)(e) of the Interconnection Directive)
USO	universal service obligations
virtual collocation	a service offered by a network operator to interconnected network operators whereby the latter may select equipment, software, and databases to be placed, installed and maintained by the former on its premises in order to allow the latter to interconnect with its network
VSAT	Very Small Aperture Terminal, a technology offering two-way satellite Internet access
wireless local loop	a wireless connection between a telephone exchange and the subscriber's telephone
WLA	wireless local access
WLL	wireless local loop: a wireless connection between a telephone exchange and the subscriber's telephone
xDSL	a collective term for all types of digital subscriber lines, including asymmetric digital subscriber line (ADSL), symmetric digital subscriber line (SDSL) and high-data-rate digital subscriber line (HDSL)